PAGE 6 PUBLISHING's

NEW ATARI USER

Issue 39 £1.50
August/September

XL/XE

CATCH DAY
Go fishing on your Atari

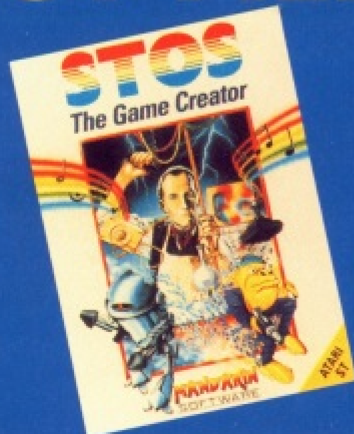
MORE MACHINE CODE ROUTINES

DESK TOP PUBLISHING on the 8-bit WITH PAGE MARSHAL

HAWKQUEST - THE GAME YOU CAN'T GET

THE TIPSTER - hints and tips on your favourite games

ST FILE



STOS type-in listings

MAKING MUSIC with MIDI

EXCLUSIVE REVIEWS of NEW ST ADVENTURES

plus ... GOLDRUSH ... TIMERUNNER ... KICK OFF ... GRIDRUNNER
BIO CHALLENGE - XYBOTS - and much more

PAGE 6 *Adventures*

FOR YOUR ST

A range of quality adventures from some of the smaller software houses that are now bringing their long heralded talents to the ST

THE JADE STONE

from Marlin Games



A beautifully illustrated text and graphics adventure by Linda Wright in which you play Amora, the beautiful daughter of Lord Senidea of Nulom engaged to Amanton, a man that you father does not approve of. In an attempt to impress him Amanton announces that he will sort out the evil sorceror Mallumo, however young Amanton is soon captured and so is your father. You learn that only The Jade Stone is magical enough to overcome the evil Mallumo and so you must search for the Stone and rescue both your father and sweetheart

An unusual and enchanting adventure with many little surprises - features include VOCAB, OOPS, EXAMINE ALL, RAMSAVE/RESTORE and GRAPHICS OFF

The JADE STONE is just £9.95

Linda Wright has been writing adventures on other machines for many years. She is highly regarded in the Adventure world and many of her games have been reviewed in CRASH and other magazines. Her most recent game THE BEAST earned a 91% rating! In a world dominated by male writers, Linda brings a refreshing new approach to many of her adventures

DOMES OF SHA Tri-Pack

from River Software

Three text only adventures from Jack Lockerby, a highly regarded writer of descriptive adventures

DOMES OF SHA is River Software's most successful adventure so far. Set in a far corner of the galaxy, an event was taking place that would not only affect the tiny planet of Olaxas, but worlds not even born. The surviving people knew that they must move or die but the Cold Fear has prevented them from going. Somebody must be strong enough to lead the people of SHA to safety

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MUTANT is a more down to earth adventure. Twenty years ago, on one of the South Sea Islands, the bomb was tested. This small island has since returned to the lush paradise it once was and small villages have sprung up around the coast but all is not well, however, as something lurks in the mountains. No-one has seen it and survived but many have heard its hideous cry. You are Mankind's last hope of tracking down and destroying this creature before it is too late

Three totally different and absorbing adventures full of evocative descriptions and hidden messages - ideal for the newcomerFeatures include HELP, RAMSAVE, RAM RESTORE, OOPS and AGAIN

Author Jack Lockerby has written over a dozen adventures on the Spectrum and Commodore and is a highly regarded figure in Adventure circles. Many of his games have received praise from Mike Gerrard, writing in Your Sinclair, and several of his games have been heavily promoted by the magazine. Jack is a retired Mining Engineer whose writing talents have brought joy to thousands of adventurers over the past 3 years.

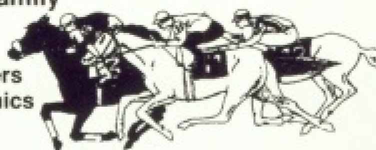
FOR YOUR XL/XE

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See PAGE 6 Magazine Issue 37 page 29 for further details of this super program. Tape version has all the facilities and fun of the disk version except that the number of horse databases is limited. ***AVAILABLE EXCLUSIVELY FROM PAGE 6***

***ORDER FORM** on page 49*

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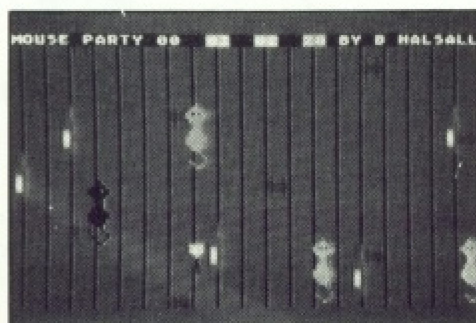
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'The magazine for the Dedicated Atari User'

CONTENTS

Issue 39 August/September 1989



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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles.

The next issue of NEW ATARI USER will be on sale 28th September
Editorial copy date is 21st August

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PAGE 6 PUBLISHING's
NEW
ATARI
USER

Issue 39
August/September 1989

'The Magazine for the Dedicated Atari User'

ISSN No. 0952-4967

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the editing, layout etc.

Sandy looked after the advertising

Stacey did all those things around the office without which we would not survive (but she seems to have got out of making the coffee)

John R. Barnsley helped out, especially out of office hours, and now seems to be in charge of the coffee

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Mark Hutchinson
John Davison
John Sweeney
Damon Howarth
Matthew Jones
John Davison jr
Paul Rixon

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

Someone is missing

The cover photo hadn't been decided at the time of writing but will most probably be by **Paul Lingwood**. If what I am thinking of comes off, Wanda might be in there.

Well the Man's new one finally came out and is a little bit of a disappointment. It's still good though - and getting better and still provides the inspiration. Another that has taken a long time to get into is Jackson Brown, slow to start but now excellent. Also 10,000 Maniacs (I knew them before Radio 1!) and a new man, Michael Johnson who is superb if you are into what they call New Country. Late arrivals, discovered after a visit to Tower Records whilst at the Atari Show include Bill Staines - brilliant! And Loudon Wainwright - good one. Now looking forward to the Cambridge Folk festival. Wonder if any of you will be there?

Anyone got any empty wine bottles? Send them in to Stacey, she collects them, funny girl! Only girl I know who asks the waiter for the empties.

NEW ATARI USER is the magazine, PAGE 6 is the concept. Wherever you see PAGE 6 you'll know what it means!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, PC Intercomm, STWriter, Protext and Fleet Street Publisher. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to The Setting Studio in Newcastle (a typesetting bureau who really know what they are doing with the ST) to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

Editorial

DIDN'T LAST LONG, DID IT?

The news of the cancellation of the ATARI XMAS SHOW is a big disappointment to us all. Atari owners seem to have been short changed again as we had to wait longer than others for our own show and therefore have had less shows in all than most other users. The fact that the Commodore and BBC shows have also been disbanded is no consolation and the COMPUTER SHOPPER SHOW will be be no replacement for the individual shows whatever the publicity you may read may say. The COMPUTER SHOPPER SHOW might be the place to pick up some Christmas software bargains but it is unlikely to be any sort of showplace and how many Atari stands are there likely to be? From our point of view as an exhibitor, supported by several other Atari related companies we have spoken to, the gamble is too great. Stands at these shows are not cheap and who knows who will turn up. Thousands of Commodore and BBC owners? Fat lot of good that will be.

The pity of not having a specific show is that all the smaller companies supporting Atari who want to show new products will not have anywhere to go. The only choice later this year will be the PERSONAL COMPUTER SHOW where any small company will just disappear among the giants and will be hard pushed to break even. So what happens? Maybe this gives added impetus to the opinions expressed last time about an independent Atari Show. I talked about just an 8-bit Show but perhaps there is now a reason to include the ST?

What do you think about the situation. Will you be going to the COMPUTER SHOPPER SHOW or the ALTERNATIVE MICRO SHOW in Stafford? Do you still want a separate Atari Show. Were two Atari Shows a year too much? It would be interesting to hear your views, after all you are the people who really decide whether shows are worthwhile.

PAGE 6 INFLUENCE

You know I have to admit that I have seldom been influenced by anything published in PAGE 6 simply because most of what goes in I have already checked out. There have of course been many exciting programming innovations published and a great number of interesting articles but being so close to the Atari has meant that, whilst I may not have known the full details, I already knew most of the things that the Atari can do and there must be other readers who are similar. This is why I like to include articles of a wider nature once in a while. John Davison's MIDI series is one such and is probably the first article that has directly influenced me to go out and buy something!

John brought his Yamaha PSS-680 synth up to the office and showed me what it can do. It's brilliant and I had to go out and get one! Despite having no musical knowledge, I can actually play and record quite respectable and recognisable music on it and have had as much fun with it as I have had with my Atari over the years. Of course the possibility of hooking it up to the Atari adds to the fun but you don't even need to do that initially! The problem with all these new things is, of course, lack of time to use them fully and whilst hooking it up to the ST is easy, it still takes time to work out patches and things and to find the best programs to use. I eagerly look forward to John's articles but would also be interested to hear from anyone else who may have bought a PSS-680. Any tips out there?

NEWSAGENT PROBLEMS

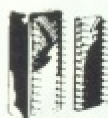
We seem to have had some problems with the last issue over the change of name with several readers reporting that their local newsagents denied all knowledge of the magazine. Luckily our distributors will do something about this if we report it to them. W.H. Smith shops in Leicester, Carlisle, Hemel Hempstead and Wakefield have all been contacted and should now stock the magazine. Obviously we can't get into every newsagent (there are around 43,000 of them!) but we should be in all the major ones. If you find your town's main newsagent does not have NEW ATARI USER on the shelves, ask the manager and if he does not stock it, tell us who and where and we'll get our distributors to sort it out. They are working hard to get us known which is great and with your help we can make sure that the magazine is on sale in as many places as possible.

STILL UNDECIDED

The jury's still out on the question of tapes. We are getting orders for the UNDER STARTERS ORDERS tapes but hardly enough to let us put another 32 pages in the magazine! If we were relying on selling Atari tapes to make a living then we would certainly be planning our next Spectrum release at the moment. There is no doubt that if this were a Spectrum magazine we would be inundated with orders. Did you know that many of the now really big British companies started by selling a few home produced tapes and were able to build sizeable empires from those beginnings. Do you ever wonder why none of the big companies support the 8-bit Atari? Keep in touch for the final decision.

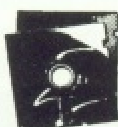
Les Ellingham

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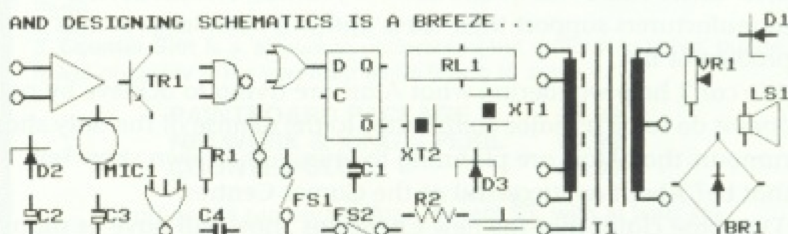
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ATARI

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ATARI SHOWS SCRAPPED

Just as we were getting used to the twice yearly Atari Shows comes the news that Database have cancelled the ATARI XMAS SHOW, together with other machine specific shows, in favour of a new Christmas 'selling' show promoted in conjunction with COMPUTER SHOPPER magazine and there is great doubt over the future of independent shows for the ATARI next year. Unless Atari start showing a great deal more interest in their users, either by supporting an independent organiser or arranging their own shows, the ATARI SHOW just gone was the last.

At the present time Database have no plans for further Atari shows and the reasons lie squarely at the door of Atari. Database Exhibitions manager Michael Meakin told us that they were disappointed that they had had to make the decision not to continue the shows but that without Atari's support, they were not viable. The last show was delayed from April until June in the hope that Atari could be encouraged to come but still they did not turn up. Other manufacturers continue to support their users. There will be shows next year for Commodore, BBC and Amstrad because those manufacturers support their users and will book large stands at the shows, whether they have new product or not.

We can't help wondering what Atari are trying to achieve by not supporting the shows. What good does it do to be a major contributor to the demise of the only show for Atari users? There are rumours that Atari are planning to launch their own show but, if it comes about, how successful will that be? About as successful as the Games Centres?

Database claim that the new Christmas Show will have as many visitors as the three cancelled shows put together but somehow we doubt that a great many of those will be Atari users. Quite likely, the place will be swamped out with Commodore, BBC and Spectrum stands and, unless there is an Atari specific area at the show, we'll be back to the old days of the PCW Show where 'hunt the Atari stands' was the best way to spend the day. Page 6 is discussing with Database the possibility of having a 'show within a show' as we believe that Atari users need the support that Atari are failing to provide but no agreements have been made at present.

Meanwhile, XL/XE owners will be welcomed to the Alternative Micro Show in Stafford in November where PAGE 6 will have a stand. We are hoping to encourage quite a few more Atari supporters to attend and will bring you more news next issue.

NEW ZEPPELIN DEAL

Atari supporter Zeppelin Games has secured the rights to the Tynesoft back catalogue for the Atari 8-bit and will soon be bringing out **PHANTOM** and **MIRAX FORCE** as budget titles. Hopefully other titles will follow and Zeppelin have confirmed that they will continue to support the Atari with new games.

LEVEL 9 MOVE

Level 9, one of the few companies to have kept faith with the Atari 8-bit through all their releases, have moved down to the South Coast where the weather is a little bit better and the property is cheaper than in the Home Counties which they hope will allow them to attract more staff. Can the Austin empire be expanding after all this time?

The sea air is helping to complete outstanding projects and Scapeghost should be out about mid-August. When we spoke to Level 9, Pete Austin was fixing a final few bugs.

A NEW LABEL WITH SOME CLASSICS AT BUDGET PRICES

KIXX is a new label dealing in re-releases and among their first scheduled releases are four Atari titles previously available only at full price. The famous **GAUNTLET** is included and others include **ACE OF ACES**, **FOOTBALLER OF THE YEAR** and **HARDBALL**. These have all been reviewed some time ago but a new batch of budget releases is always welcome. These ones retail at £2.99.

NEW CATALOGUE

Sunaro Software have sent in a copy of their latest and updated catalogue which includes news of almost 20 'coming soon' titles together with several 'clearance' bargains. There are over 200 titles listed, all for the Atari 8-bit, plus lots of things like joysticks and peripherals. There are even money off vouchers for orders placed before the end of September. If you want a copy, drop Sunaro a line at P.O. Box 78, Macclesfield, Cheshire SK10 3YB or give them a call on 0625 25228.

WIN ON THE GEE GEES!

Blue Ribbon are another company who seem to keep faith with Atari and, although they don't seem to have a great number of releases, another Atari title is more than welcome especially if it is a non-game title. Their new release is TURF-FORM, a horse racing forecaster that can help predict form for both Flat and National Hunt races on UK racecourses so giving you the chance to pay for a new disk drive or whatever! TURF-FORM is quick and easy to use, requiring only information found in most popular daily newspapers and will produce speed and fitness ratings giving the horses chances of victory on the chosen course.

TURF-FORM is priced at just £2.99, a small price to pay to beat the bookies!

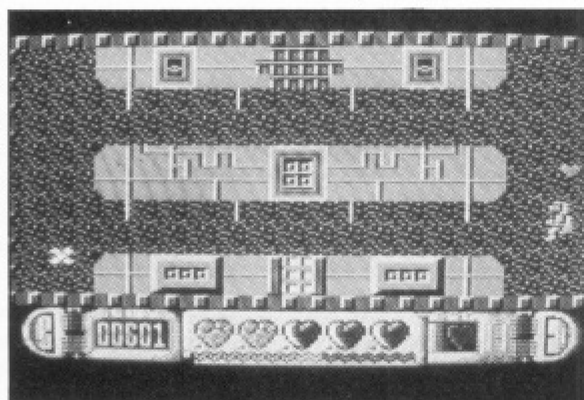
SOME MORE NEW RELEASES

Alternative have finished **POSTMAN PAT**,which has now been released on other formats, and are now converting to Atari 8-bit with imminent release as a budget title at £1.99. Codemasters have another one out, **FRUIT MACHINE SIMULATOR** which will available at £2.99 and are working on **MOUNTAIN BIKE SIMULATOR**.

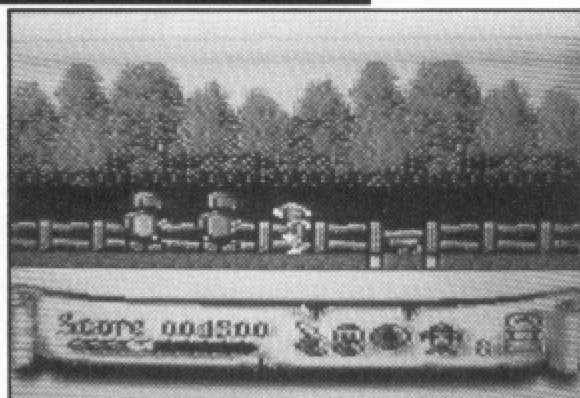
Releases later on in the summer should include **SYSTEM 8** from CDS, and **CRACK-UP** and **GUN FIGHTER** from Atlantis.

MORE NEW GAMES FROM ATARI

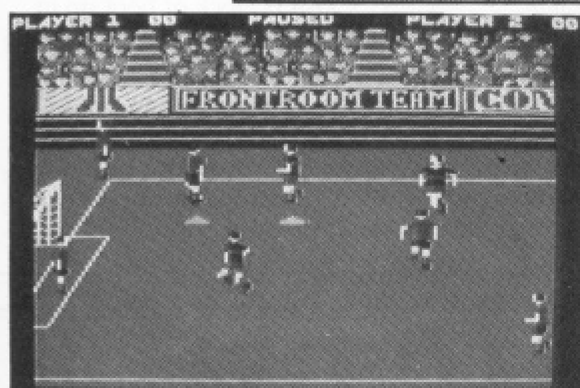
Who says Atari aren't supporting the XL/XE? Following on from Tiger Attack and Nucleus, reviewed last issue, are five new games to be released over the coming months.



HEARTACHE - looks like a scroller



BLACK LAMP - a well known adventure



SUPER SOCCER - due just before Christmas



CYGNUS X1 - some great looking graphics

CYGNUS X1 was originally to have been released by Anco but has now been picked up by Atari for release at £2.99 and should be available from your usual retailer round about now. The others are still in production and we will bring you reviews of them all as they come out. Meanwhile here are a few pics to whet your appetite and prove that these games really do exist! Thank you Atari, keep 'em coming!

MAILBAG

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Mailbag
P.O. Box
54,
Stafford
ST16 1DR
ENGLAND

FOR BETTER OR WORSE?

Apparently the latter. Why? Well, while I was happily digging in the latest issue (June/July) I discovered some bugs which are just plain stupid. Although I probably won't be the first to write about it I would like to point them out.

It starts on pages 12 and 13. There are four listings numbered 1 to 4. According to the programs themselves they have the numbers 1, 2, 3 and 4 but if we believe the remarks underneath they are numbered 1, 2, 2 and 3. Not a horror, but still annoying.

Next we hop onto the MCQ-TEST on page 26. According to the programs you printed listings 1, 3 and 2 in this rather odd order. However the remarks state the listings are printed in the right order.

Now for the real horror story, starting at page 44, the Real Time Clock. You printed 2 listings, one for Disk and one for Cassette users. How nice! Both programs have been split into two parts, resulting in a total of four parts. Obviously the intention was to print all four pieces but that's not quite what happened. Indeed there are four pieces but still the first part for Disk users is missing. i guess that this is about the only time that 4-1 makes 4. I hope to see Issue 39 and please, please, please make sure it will be perfect!

N. Lamers
Achtervetd,
The Netherlands

Guilty to the first minor one but the other major, and unforgivable, cock-ups happened after the artwork left us. What was said when we saw that issue does not bear repeating in print! Suffice it to say that I was quite annoyed. A great deal of care is taken with the listings and they are checked and double checked as they are pasted up and they were all perfect when sent for origination. The listings were then stripped off for tints to be added and pasted back in the wrong place. It won't happen again, believe me! Apologies for the inconvenience. For more details see the Update column this issue.

DOS OPTION K

As far as I know many Atarians have never used option K in the DOS menu. BLASTCOM in Issue 37 is a complete machine language program that must still be run in Basic. You can get the source code but you don't need it to create a binary file. Just use option K in the DOS menu! Here's how to do it.

Prepare a freshly formatted disk, boot up your machine and load BLASTCOM but do not RUN it. Change line 340 to 340 STOP. Now RUN BLASTCOM.

When the computer has stopped at line 340, go to DOS (don't switch off and reboot). Insert your formatted disk and choose option K in the DOS menu. Type BLASTCOM.COM, 6000,69AA,,6000 and press RETURN. A binary file of 20 sectors will be written.

Now you can run BLASTCOM with option L in the DOS menu or with any menu program, without using BASIC!

John van der Spoel.
Zwijndrecht,
The Netherlands

UPDATE YOUR SUPRA

For over a year now SupraDrives have been fitted with an internal battery backed clock/calendar facility. This is an extremely useful feature which, via the supplied SUPCLKRD.PRG, sets the Atari ST's XBIOS clock at boot up or after a reset. However, it does not set the GEMDOS clock, which is used by some programs such as Word Perfect.

Martin Dryden has kindly supplied Frontier Software with a small program which sets the

WHY NO ST LISTINGS?

I thoroughly enjoy the magazine, especially the tutorials but find that the ST section is far too short, and too full of games reviews. when you read the 8-bit section, which I do, there seems to be three or four listings in each edition, covering all sorts of subjects. I would be happy to see some of these listings or their equivalents for the ST. After all not everyone who has an ST has had previous experience with computers, and not all ST owners wish to play endless games on it. Far better to type in a listing and learn from that program what your computer can do!

J.A. Chadderton,
Leyland, Lancs

The great thing about the 8-bit Atari is that everyone who buys it gets an excellent version of BASIC built into the machine and knows that anything other more experienced users have written will run on their machine without them having to go out and buy any extras. The sad thing about the ST is that Atari made a huge blunder by supplying a disk based version of BASIC that was full of bugs and got such a bad reputation that no programmer wants to use it. What then happens is that lots of people go off in their own favourite direction and many languages are used. The end result, as far as using the program might be the same, but the problem with printing a listing is that maybe only a small percentage of readers will have the language concerned. There are other problems too. On the 8-bit Atari some amazing programs can be written in a mere 48k yet on the ST it seems that it can take up to 10 times as much memory to achieve a similar result and there is just not sufficient room in a magazine to print such listings. Many of the better programs also have support files such as pictures, resource files and sound files which cannot be printed. It is possible to write great programs on the ST which can be typed in in ST BASIC as Paul Lay demonstrated with MAD but these submissions are rare and besides, you learn nothing from typing in a lot of machine code data. Mind you, in the case of MAD you did get an incredible

GEMDOS clock from the XBIOS clock. When placed in an AUTO folder after the SUPCLKRD.PRG, any minor inconveniences regarding the GEMDOS clock are effectively eliminated! This program and its source code is available for free distribution - simply supply us with a formatted, single sided 3.5" disk. Further, our hard disk drive Supra Utilities software disk is now at version 3.37. If an owner would like to update to this version, please return your original Supra Utilities disk and £2.50.

Martin Walsh
Marketing Manager
Frontier Software

This letter sounds like an attempt to get a bit of free publicity to me and to think that they even forgot to include a free copy of these new utilities even though this entire magazine is created with the help of a Supra Drive! Still, no hard feelings and we'll even give you Frontier's address which is P.O. Box 113, Harrogate, North Yorkshire HG2 0BE

MIXING GRAPHICS

In one of your recent magazines the statement was made that it is possible to mix any of the graphics modes on screen. So far, I have only mastered mixing Graphics 0, 1 & 2. Any chance of an article?

D. Firth
Bath

We have covered this before but a long time ago. We are still willing to publish any programming articles of this kind if anyone can come up with a fresh slant on things. It is a long time since we received any kind of contribution along these lines, perhaps all the users who know how to do it think that it's all old hat by now? Not to folks who have recently bought their machines. Perhaps it's about time we started covering some of the old ground again?

program. So what language to support? No magazine seems to have found the answer to this. Perhaps the most promising language is STOS which has the ability to dump picture files and the like as a re-typeable text files as you will see elsewhere in this issue. Length of the listings might still be a problem but it looks so promising that we intend to publish STOS listings in future, if we get any submitted!

Thanks to all the overseas readers whose letters appear in this issue and the many others who also write to us from far and wide. Does anyone in England read the mag?

BLOCKBREAKER JOYSTICK ROUTINE

Votre magazine PAGE 6 pour les 8 bit est super. Au no. 20: BLOCKBREAKER c'est un tres bon jeu mais je ne dispose pas de paddle. Comment adapter ce jeu pour des joysticks? Pouvez vous m'apporter une solution en modifiont le programme?
Sinceres remercements.

Monsieur Cagnon Fredy
Viry, Chatillon,
France

Le joystick routine est dans le Issue 22. Le Issue est still available, regardez le back issues page. Bet you thought I couldn't answer that one, didn't you!

UNBELIEVABLE!

Just a note to thank you for selling my 8-bit system in CONTACT June/July. Subscription users have the advantage on bargains in the column. Let me tell you what happened.
When my Page 6 Accessory Shop order form came through I knew the subscription Atarians would have their mag while Newsagenters would have to wait another day at least. At 6 pm, the time stressed in the mag, the phone went CRAZY. In the first night, up to 11 pm, I had 127 callers! It was unreal. As soon as the phone was put down it rang again. Now four nights later the running total of callers is 531 plus whatever my mum did not record. I have the names and telephone numbers of so many fellow Atari users all wanting to be rung if the order fell through. First to ring was a man in Middlesex.
There is a major shortage of 8-bit drives. Callers did not want a XF551 because it was unreliable but mostly because it did not match their XL machines!
Thanks a lot again.

Adam,
Lytham St. Annes

Wow!

LIKED IN GREECE

Congratulations for your magazine. I am a proud owner of Atari 800, 130XE and 1040ST computers. I read every month your magazine and I think it is perfect. It contains everything an Atari owner would like to know.
Almost a year ago I was about to lose my enthusiasm, because I thought Atari 8-bit computers had at last lost their power. But since I started reading your magazine I felt that there is still much power left in their chips. Atari computers are still the top of home computers.
Once again congratulations. Keep up the good work.

Takis Pournatas,
Athens, Greece

FROM ONE SIDE OF THE WORLD

I am a new subscriber to your magazine that wants to talk with you (with some difficulty because I do not speak English). Congratulations! In a short time I'm impressed with your seriousness and very good quality. To fulfil offers is not very common virtue (I have three older magazines subscriptions). The only complaint I have is that you are not a monthly magazine.
Help! Some file games do not run in a Spartados or Mydos double density format. How could I know it before I spent time saving ... and deleting? I have an 800XL with RAMBO XL and I can't run either PRINT POWER or THE PAWN. Could you tell me what other programs need the Antic chip? Do you know some menu-autorun for binary files that permits double density and maybe double sided? I am using Microdos (from Analog) but it doesn't write bytes 129 - 256 and I must re-write them. I would like to buy ATARI BASIC by Albrecht. Where must I write to and how much does it cost?
Thanks in advance.

Luis Edwards,
Trujillo, Peru

Thanks for your comments, Luis. I am afraid that we can't help much on your specific queries regarding the problems with the expansions to your system since, in the main, we only use the standard Atari equipment. Expansions such as the RAMBO XL are not as common in this country as in the U.S.A. but I am sure that some of our readers will be able to help. If anyone can answer Luis's queries please write c/o Page 6 and we will pass the letters on. The only one we can directly answer is your last question concerning the ATARI BASIC book. Unfortunately this is now out of print so your only chance is to get a second hand copy. When new it cost around £11.95. Maybe a notice in the CONTACT column will do the trick?

... TO THE OTHER

I am writing in response to your invitation for overseas Atari Users to write and tell of their situation. I have owned my Atari ST for just over a year now and although I am in a very poor situation, I have stuck with Atari, as the ST still amazes me. In my area, there is only one other person I know with an ST. There are no 8-bits at all. There is no support whatsoever from either Atari or my dealer. I can get no software from the dealer, so I have to order everything by mail order. The problem is that the prices put everything out of reach. The computer is cheap enough (compared to an Amiga it is $300 cheaper) but the price of a game ranges between $50 and $90! Buying a game is a big occasion. We don't even get the software bundle that UK Atari owners enjoy.
Although there are plenty of

Atari Users in Victoria, the User Club (ACE) is 200 kilometres away and meets one Sunday every month. The journey itself is long enough but I have to go to school so, as yet, I have not been to a single meeting. Your magazine is cheap compared to most overseas magazines and from what I have seen of it so far, I think my newsagent will be reserving me a copy of New Atari User for some time.
If any ST user feels sympathetic, don't hesitate to write, please?

Jared Quinert,
6 Newby St.
Numurkah VIC 3636
Australia

GIVING IT ALL AWAY

In response to David McLaren's letter agreeing with the idea of listings on tape, I thought I'd tell you about an idea that struck me while reading the letters. Why not stick the listings on tape on the cover of the magazine like Your Sinclair do regularly. It would not be expensive and you could order the copies in the same quantity as the magazine i.e. 1 per copy of NEW ATARI USER. For disk users the tapes could be used as audio tapes therefore an advantage for disk users. As for the current system of a free disk for every subscribed issue you could stick to that as well.

Shappir Alim,
London

Quick mother, bring me the oxygen mask! Would not be expensive? Neither is a new Porsche if you can afford it. We could probably get the tapes duplicated for about 20p each so that's 25,000 times 20p which comes to a mere £5,000 per issue or £30,000 a year. And we would be giving that away!! Good job I'm sitting down to answer these letters. Anyone want to sell their Porsche to fund this idea? The economics of magazine production means that if you sell about 80,000, like Your Sinclair, you can afford to do this but if you don't, you can't, so sorry Shappir no free cassettes, not unless you want to buy 60,000 copies. And before anyone gets the wrong idea we don't give away a free disk to every subscriber either!

TURBO TIPS

I would like to congratulate you on your support for Turbo Basic, which I consider to be the most superb Basic I have ever used. I would also like to inform your readers about a feature that does not appear to be documented. If you are a programmer who can't keep up with your listings when you list them, try pressing the OPTION, SELECT or START keys. By doing this, the listing will scroll past at a greatly reduced speed.
Before I go I would also like to congratulate you on a magazine that, no matter how impossible it may seem, seems to double in quality each issue!

Stephen Firth
Preston

PIRATED SOFTWARE

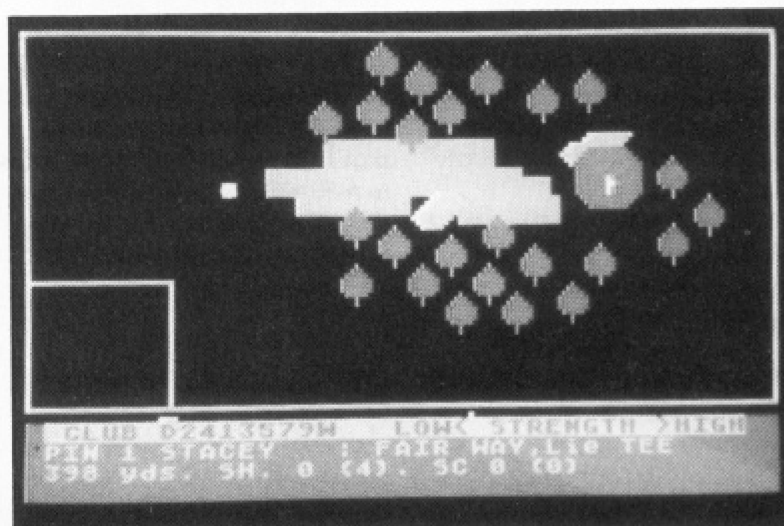
I read 'Games they Never Released' with interest as I own a great deal of that software plus many more such as Mr Do's Castle, Mario Bros, Vanguard and Hunchback.
The problem I have with this software is that it is all pirated and not re-saleable on the open market. Could you please tell me if the copyright laws in North America apply to us here in Britain and if I could re-release this excellent software into the public domain or sell it myself? I am sure there would be a good market for this software as all of it is top quality.
Among the software available in the U.S.A. I also have a copy of Load Runners Rescue, the follow up to Load Runners Follies which is a very good piece of software. If you are interested in any of this software, please contact me as I will be only too pleased to help.
Name and address supplied.

Some of the games you mention were never released anywhere yet the author's copyright still applies worldwide and there is nothing that can be done with the software without the copyright holders express permission. And to save you all writing (as happened last time we mentioned pirated software) we will not pass on your requests for copies of these games!

DISK BONUS

PROFESSIONAL GOLF

by K.F. Baker



Here's your chance to take part in a series of professional golf tournaments, either alone or with up to four players, and you'll be playing against the world's top professionals including Greg Normam, Sam Torrance and the rest. You can play all over the world too, as the courses range form Troon to Augusta.
Professional Golf is another great BONUS on this issue's disk. Each hole has different types of bunker, trees to avoid and appropriately shaped fairways. You have a choice of clubs and can gauge the strength of your shot. Timing of the swing is critical as the ball can be sliced, pushed, pulled or have back spin. Once you reach the green, the screen changes to allow you to putt.
At the end of each hole you will receive course news about how all 38(!) players in the tournament played the hole together with a complete overall scorecard showing your position. At the end of each round you can save the game to continue the tournament later.
There are nine courses to load from the disk, real and fictitious, including Lindrick, Augusta, Troon, Georges, Longout, Mean, Help, Yourout and Rlytham. If you want more, simply design your own for there is a built construction set allowing you to fully design and save your own course.
Professional Golf is a game that will keep you busy for hours with the following features

1 - 4 PLAYERS
9 READY TO PLAY COURSES
5 LEVELS OF PLAY
FULL CLUB AND BALL CONTROL
COURSE CONSTRUCTION SET
FULL TOURNAMENT SCORECARDS

Professional Golf comes as the bonus on this issue's disk. Disk subscribers will receive a copy automatically with their magazine but the disk is available separately for just £2.95. Just send a cheque or P.O. with a written order to PAGE 6, P.O. Box 54, Stafford, ST16 1DR or use the order form elsewhere in this issue.

HOW TO TYPE IN THE LISTINGS and get them right!

The program listings in NEW ATARI USER are prepared carefully to ensure that they can be typed in as easily as possible. Before typing any listings ensure that you are familiar with the use of the Shift and CONTROL and INVERSE keys as outlined in your computer manual. The listings are prepared to match exactly what you see on screen. Every character that you may see in a listing is included in the chart below for cross reference. By using TYPO 3 you can ensure that you type in the programs EXACTLY as they are printed. Remember, a single typing mistake may mean a program will not run.

WHAT ARE THOSE CODES?

Each line of a program printed in NEW ATARI USER begins with a special two letter code. THESE SHOULD NOT BE TYPED IN. They are used by the program TYPO to check that you have typed each line correctly. IF YOU HAVE NOT ALREADY TYPED IN THE TYPO 3 LISTING PLEASE DO SO NOW. The program can be used as you type in each line of a program or to check an already typed program. The code for each line will match but if you have problems check the listing conventions below carefully, you are most probably typing a CONTROL character incorrectly. TYPO 3 cannot check whether a line has been missed so if you have problems in running a listing count the lines in the program and ensure none are missing. If the TYPO codes match and the program still does not run, LIST it to cassette or disk using LIST "C:" or LIST "D:filename", switch off the computer, re-boot and then ENTER the program using ENTER "C:" or ENTER "D:filename". Save this version in the normal way.

HOW TO USE TYPO 3

1. Type in the listing carefully for although you can use TYPO 3 to check itself (see 6 below) it may not work if you have made mistakes.
2. SAVE or CSAVE a copy of the program.
3. Each time you want to type in a program listing RUN TYPO 3 first. The program will install a machine code routine in memory and then delete itself. Now type in a line as shown in the magazine *excluding the first two letter code* and press RETURN.
4. A two letter code will appear at the top left of your screen. If this code matches the one in the magazine carry on and type the next line. Note, the code will not match if you use abbreviations. If you prefer to use abbreviations LIST the line you have just typed, move the cursor to that line and press RETURN. The code should now match.
5. If the code does not match, use the editing keys to correct the line and press RETURN again. Repeat if necessary until the codes match.
6. To check a line you have already typed LIST the line, place the cursor on that line and press RETURN.
7. When you have finished a listing just SAVE or CSAVE it in the normal way.

You can type in a program without using TYPO 3 and then check it by SAVEing or CSAVEing a copy of the program, running TYPO 3 and then LOADing or CLOADing your program and proceeding as in step 6 above.

Always SAVE or CSAVE a program before running it and always use TYPO before telling us that a program will not run.

OUR UNIQUE LINE BY LINE CHECKER WORKS ON ALL ATARI XL/XE and earlier 8-bit machines

```
EI 1 REM ********************************
AL 2 REM *  TYPO III by Alec Benson     *
         *          June 1985           *
SA 3 REM * A proofreader for ANTIC and *
         *   PAGE 6 based on TYPO II    *
         * published by ANTIC magazine *
EL 4 REM ********************************
SG 100 GRAPHICS 0
WG 110 FOR I=1536 TO 1791:READ A:CK=CK+A:
   POKE I,A:NEXT I
CG 120 IF CK<>30765 THEN ? "Error in DATA
    statements - Check Typing":END
YM 130 A=USR(1536)
VT 140 ? :? "TYPO III is up and running":
   NEW
MA 1000 DATA 104,160,0,185,26,3,201,69
HG 1010 DATA 240,8,200,200,200,192,36,208
QB 1020 DATA 242,96,200,169,79,153,26,3
RK 1030 DATA 200,169,6,153,26,3,162,0
RR 1040 DATA 189,0,228,157,79,6,232,224
TO 1050 DATA 15,208,245,169,93,141,83,6
KC 1060 DATA 169,6,141,84,6,173,4,228
EU 1070 DATA 105,0,141,95,6,173,5,228
BK 1080 DATA 105,0,141,96,6,169,0,162
KK 1090 DATA 3,149,203,202,16,251,96,0
ZR 1100 DATA 0,0,0,0,0,0,0,0
LD 1110 DATA 0,0,0,0,0,0,32,94
JM 1120 DATA 6,8,72,201,155,240,55,230
TV 1130 DATA 203,133,209,138,72,169,0,133
TW 1140 DATA 208,162,8,10,38,208,6,209
MF 1150 DATA 144,7,24,101,203,144,2,230
RL 1160 DATA 208,202,208,239,133,207,24,1
   65
TM 1170 DATA 204,101,207,133,204,165,205,
   101
AW 1180 DATA 208,133,205,165,206,105,0,13
   3
XH 1190 DATA 206,104,170,104,40,96,138,72
NR 1200 DATA 152,72,162,0,134,207,134,208
GF 1210 DATA 160,24,6,204,38,205,38,206
EA 1220 DATA 38,207,38,208,56,165,207,233
TM 1230 DATA 164,170,165,208,233,2,144,4
SK 1240 DATA 134,207,133,208,136,208,227,
   162
CB 1250 DATA 8,165,207,133,204,165,208,6
XN 1260 DATA 204,42,201,26,144,4,233,26
MB 1270 DATA 230,204,202,208,242,133,205,
   169
BC 1280 DATA 128,145,88,200,192,40,208,24
   9
WV 1290 DATA 165,204,105,160,160,3,145,88
QA 1300 DATA 165,205,24,105,161,200,145,8
   8
MQ 1310 DATA 32,69,6,104,168,76,153,6
```

Normal	Inverse	Shift	Inverse Shift	Control	Inverse Control
1		!			
2		"			
3		#			
4		$			
5		%			
6		&			
7		'			
8		@			
9		(			
0		)			
<					
>					
a		A			
b		B			
c		C			
d		D			

Normal	Inverse	Shift	Inverse Shift	Control	Inverse Control
e		E			
f		F			
g		G			
h		H			
i		I			
j		J			
k		K			
l		L			
m		M			
n		N			
o		O			
p		P			
q		Q			
r		R			
s		S			
t		T			

Normal	Inverse	Shift	Inverse Shift	Control	Inverse Control
u		U			
v		V			
w		W			
x		X			
y		Y			
z		Z			
-		_			
=		|			
;		:			
+		\			
*		^			
,		[			
.		]			
/		?			

INVERSE SPACE

Other codes

ESC ESC
ESC CTRL -
ESC CTRL =
ESC CTRL +
ESC CTRL *
ESC SHIFT CLEAR
ESC DELETE
ESC TAB
ESC SHIFT DELETE
ESC SHIFT INSERT
ESC CTRL TAB
ESC SHIFT TAB
ESC CTRL 2
ESC CTRL DELETE
ESC CTRL INSERT

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includes Master Utility Disk, Programmers Disk

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Omnimon Emulator	2.95
Ultramon Emulator	2.95
Auto-Menu Emulator	2.00
The Disk Warper (requires Super Archiver)	2.95

SOFTWARE

PRODUCTIVITY

	REC PRICE	OUR PRICE	
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PS Icon disk 2	19.95	5.00	D
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B-Graph	29.95	14.95	D
Family Finance	19.95	12.95	D
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Basic Compiler (SpartaDos compatible)	29.95	7.00	D
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Suspect	24.95	9.00	D
Seastalker	24.95	9.50	D

ARCADE

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Repton	29.95	7.50	D
River Raid	12.95	6.00	R
Juno First	12.95	5.50	D
Zaxxon	12.95	5.00	D/C
Rosens Brigade	12.95	5.00	D/C
Sea Bandit	9.95	4.50	D/C
O'Riley's Mine	14.95	5.50	D/C
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Clowns & Balloons	14.95	5.50	D/C
Robot & Factory	7.95	4.50	C
Maltese Chicken	9.95	5.00	D
Pole Position	14.95	5.50	D
Smash Hits 7	14.95	6.50	D
Zybex		4.00	D
Kenny Dalgleish Football Manager		9.95	D
Pooyan	14.95	5.50	D/C
Food Fight	14.95	12.50	R
Desert Falcon	14.95	12.50	R

D=DISK
C=CASSETTE
R=ROM

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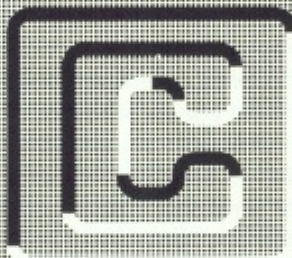
includes MYDOS 4.50 disk operating system with technical notes, ramdisk source code and VTOC disk fixing utility. Atari PAINT art package. The PAY-OFF text adventure. HOME FILING MANAGER, the computerised card index database system. All connecting leads and manuals

1050 part exchange service available!

XF551 DUST COVER 3.95

ATARI APX CASSETTE SOFTWARE £2.95 each

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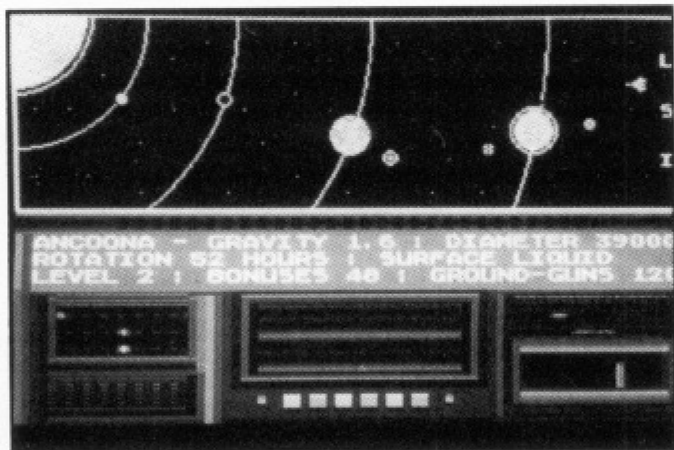


ACCESS - MASTERCARD - EUROCARD ACCEPTED

HAWK QUEST

A NEW CLASSIC THAT ATARI OWNERS MAY NEVER SEE

This is a review with a difference! The game I'm about to describe is not currently available in Britain, the States or indeed, anywhere else in the World. In fact, I can safely assume that no one outside the Dunedin Atari Users Club, New Zealand, will have even heard of it! No price has been set, no release date is planned, and yet HAWK-QUEST is a game of the highest possible quality, far superior to much of the 'unavailable' US software reported in Kirk Ruebottom's article last issue. In terms of

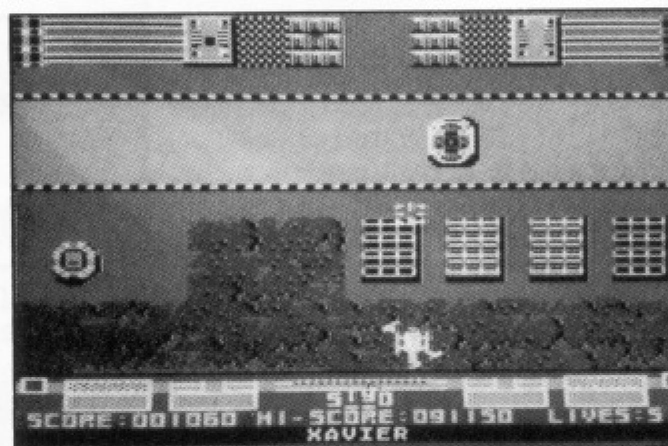


graphics, playability and addictiveness, Hawkquest is a truly outstanding package. So why has it travelled no further than a users group on the opposite side of the world? Quite simply, nobody wants to publish it! Of the few companies nowadays interested in releasing 8-bit software, most will only consider budget-priced cassette material which they can produce with the minimum of effort, at minimal cost. One or two will issue a disk to accompany the tape, but none, it seems, will touch a solely disk based program. Herein lies the problem, as Hawkquest requires disks - two of them - and despite the writers' attempts to have their work distributed, they've been unable to find anyone with the enterprise to assist them. Hawkquest is a superbly written, in-depth package of the sort that Atari owners would dearly love to see, but rarely do.

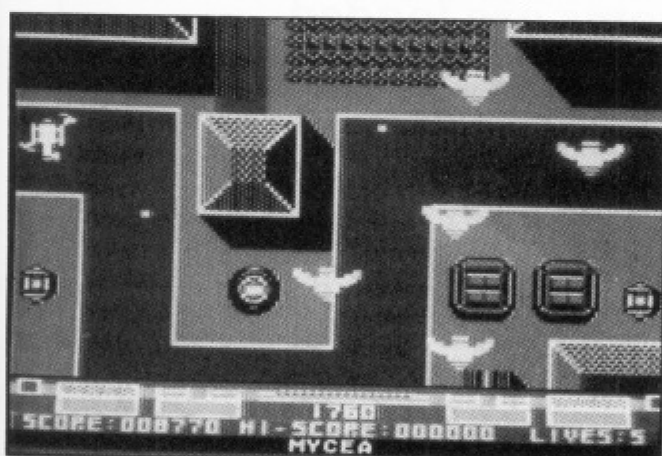
There can be no doubt that the authors of Hawkquest are both dedicated Atari enthusiasts who know their machines inside-out and who have a genuine desire to benefit the 8-bit cause. New Zealand residents Andrew Bradfield and Harvey Kong Tin were also responsible for Laser Hawk, an excellent Scramble clone that was released by Red Rat Software at the beginning of 1987 (and reviewed by Jim Short in PAGE 6 issue 26). Harvey is well known to older PAGE 6 readers through his valuable contributions to the magazine and by his talent for designing super graphics for computer games. Quite recently he joined forces with ace programmer Paul Lay to bring ST owners MAD - one of the best type-in listings to have ever appeared in a magazine. Andrew and Harvey have put a tremendous amount of time and effort into perfecting the Hawkquest project and the evidence is obvious from the moment you boot up the disk.

There are two different games that together make up Hawkquest and they are related by the fact that access to the second game is dependant on a player's ability to complete the first. The plot reveals that your home planet, located in a far-off region of the universe, has developed a unique power generator to meet the population's energy requirements. The key to the technology lies in a special Energy Crystal that cannot, unfortunately, be duplicated but which, in itself, is capable of infinite supply - what's more, it's completely ozone friendly and pollution free! But all good things eventually come to an end and it's not long ground fortress - naturally protected by guards, robots and traps (what else?!). In a desperate bid to save your power-less people from almost certain extinction, you have taken on the task of retrieving the pieces and gallantly head for the fortress with a modest supply of antiquated helicopters, laser guns, bombs and a packed lunch. Codename: Mission Hawkquest!

After loading the first disk - a sequence that's accompanied by an attractive picture of your helicopter in combat - you are presented with a title screen, featuring ... yet another artistic drawing of a helicopter! From here you can choose to either view the highscore table, select a level of difficulty or enter the demonstration mode - a wise choice for the first-time player! Alternatively, pressing the Start button prompts a switch of scene to the cockpit of your space cruiser. In the lower half of the screen there's an instrument panel from where you can view the inventory. Of course, this will be empty until you've managed to locate some parts of the missing Crystal. There are various other lights and animated dials on the panel which are purely for cosmetic effect - and they really are very good, adding an extra sparkle to the presentation. Above a central information window where all text messages are later displayed, there's a map of the surrounding star system showing each of the five planets where the Crystal segments are supposedly hidden. By moving a small cursor over a planet's surface, you can obtain details of its name, dimensions, defence system and similarly mind-boggling statistics relating to its environment. Three further options positioned to the right of the map are selected in the same way. These allow you to view facts about the current game in progress and to load or save game positions. It's a good idea to save your position after completing the first phase of the game so that in a subsequent session, there's no need to re-start from the very beginning. This feature wins a gold star in my book - so often I have not bothered to persevere with a game because it couldn't be completed in a reasonable amount of time!



To commence playing phase one, you must simply select any planet with the cursor and hit the joystick trigger twice. The appropriate data then loads in from disk, and in recognition of the fact that games players don't generally appreciate waiting for disk access, a pleasant count-down screen is provided to alleviate any frustration - and it works! Another good point! The subsequent game is a vertically scrolling shoot 'em up of a similar nature to old favourites such as Xevious and Flak. Your objective is to avoid or, preferably, eliminate the numerous enemy craft and ground installations with your laser equipped helicopter. Just in front of the helicopter there's a cross to indicate the recipient of any bombs you should drop - as in Xevious. Bombs and laser fire are unlimited, so the only important strategy is to avoid getting killed. Easier said than done!



There are many forms of alien attack craft, some simpler to negotiate than others. Luckily, certain hidden targets conceal useful extras for your chopper such as additional shielding and bonus lives. Indicators underneath the large, continuously scrolling portion of the screen light up to alert you of any nearby goodies. Information here also includes your score - calculated by the number of successful hits on the enemy - and the distance to the end of the section. At the end you'll find a force-field generator and this must be destroyed if you are to progress onto the second phase of play. If you miss the generator, you must start again at the beginning of the stage. If (when) you should run out of helicopters, you can choose to continue playing in the current section - thereby avoiding any unnecessary disk access - although all score totals will be reset to zero. It's a handy option for practice purposes.

Harvey Kong Tin has obviously spent an incredible amount of time adding his personal artistic touch to each and every one of the five planet scenarios. Each is entirely different in design from the desolate, cratered landscape of 'Sorea' to the tropical greenery of 'Xavier'. The planets also have a completely individual selection of nasties - superbly animated, well drawn and exceedingly irritating! There is no restriction on the order in which you attempt the five planets, although you may find that some appear easier to contend with than others.

Having successfully completed phase one of the game, you are ready to attempt phase two and are treated to the countdown screen once again while the data boots from disk. There is no similarity whatsoever between the two halves, the scrolling battlefield is replaced by the walls and fittings of an underground fortress. This time your joystick commands a Marine, whose job it is to find that missing Crystal piece and escape before the nasties get him. Mapping the eight-way scrolling fortress is a good idea, as there are numerous traps and hostile robots waiting to pounce should you step out of line. Hidden in many of the walls are small cavities that may - or may not - contain a useful artefact. You need to find certain objects, such as explosives and a wall-blaster in order to reach the Crystal. Other items, such as a trap finder for avoiding any nasty surprises and a robot paralyser - not unlike a Pac Man power pill, - are beneficial but not essential. You have unlimited time in the fortress but a restricted number of marines, and it's very easy to lose a life through stumbling on a trap, or arguing with a robot!

Once you've located the Crystal it's a case of finding the teleport that provides your route back to the planet selection screen, and your chance to attempt the next challenge. As in the primary game, each planet features a different scenario with a host of adversaries to match. If you select to play at difficulty level two, the scenes will be completely different to those on level one. Again, the graphics are excellent and the game extremely playable.

I have no doubts that had Hawkquest been marketed by Synapse or Datasoft in the early 1980's, by now it would be regarded as a classic. The list of specifications in itself is quite remarkable - two disks containing two challenging, inter-related games with fifteen scenarios in superb quality graphics. Although the preview copy of Hawkquest was not entirely finished, the game was still immensely addictive, exciting, and 100% playable. But would anybody buy it?

The PAGE 6 readers survey, published last issue, indicates that 71% of 8-bit readers are disk based, which surely contradicts the companies' view that owners in the UK are only interested in budget cassettes. If a large proportion of these owners were prepared to actually purchase a game of this nature, Hawkquest would clearly be a worthwhile proposition for any organisation willing to undertake the necessary marketing. It would be a great shame if the Atari community were deprived of such a highly desirable game, and my hope is that this preview might possibly encourage someone, somewhere to take a closer look.

Unless there is a will to publish this game, you may never get to see it. If you feel strongly about this situation, and would be quite prepared to part with some cash if it were actually released, then why not send a copy of this review and a letter explaining your feelings to a software company? A few months ago Harry Nadler of Red Rat Software informed me, and I quote, "Red Rat would like to publish more 8-bit games, but finding programs of high quality is becoming increasingly difficult. Maybe some of the readers of PAGE 6 can submit a top class game to us!". If he genuinely meant what he said - and I've no reason to believe otherwise - then perhaps a few thousand letters addressed to 11 Fennel Street, Manchester, M4 3DU would persuade him to publish this one? Write also to Zeppelin, Domark and any other company who have recently issued programs for the Atari, even Atari themselves.



PAUL RIXON

DO YOU WANT TO MARKET THIS GAME?

If any software house is interested in marketing Hawkquest (and possibly Laser Hawk too) they can contact: Harvey Kong Tin, 2 Hall Street, South Dunedin, Dunedin, NEW ZEALAND or telephone either Andrew Bradfield on 00 64 24 34425 or Harvey Kong Tin on 00 64 24 56084 after 6pm. They are waiting for your call!

NUMERICAL CONVERSIONS UTILITY

David Manlove presents a useful conversion utility for programmers and others that remains available when other programs are loaded

Whilst there have been a number of short programs to convert between decimal, hexadecimal and binary, most have had some shortcomings. The majority of programs, including the one in the Atari User Toolkit, require Basic which means that Assembler cartridges, where the conversions are most needed, are left out. Almost all have to be loaded as a separate program making it necessary to save a program you may be working on before loading the conversion utility. Hardly convenient.

The Numerical Conversions utility overcomes these problems by being available at all times and being called by a new command added to to whatever programming environment is being used. The two program listings create either an AUTORUN.SYS file for disk or a boot cassette so that the utility can be loaded as the machine is switched on. From there on it remains available, subject to certain restrictions which will be explained later.

To access the utility simply type CONVERT in direct mode and the main menu listing the available commands will appear. Converting decimal, hex and binary numbers is straightforward, just precede hex numbers with $ and binary with % leaving any decimal numbers with just the digits. Do not leave any spaces anywhere. There are also two extra functions provided, addition and disassembly of integers. These are used frequently in machine code where two bytes come together to form a larger number as in 200,100 which gives 25800 (200 + 100*256). All numbers entered are automatically disassembled into high and low bytes with the low byte shown first and the result is shown on the right side of the screen. The B function will perform the opposite function giving the result of low and high bytes, for example B48,117 with the low byte entered first would give the result 30000 in decimal. The final option on the menu - X- allows you to leave the utility and return to your program.

A FEW RESTRICTIONS

This utility sits behind the OS so 2000 bytes of code have been compressed to 300 using the bank switching method. This does mean that it is not suitable for 400 or 800 computers nor 600XLs with less than 32k. The NCU is not compatible with any DOS or cartridge that switches out the Operating System, for example DOS 2.5XL. The program has been tested with BASIC, Assembler/Editor and MAC/65 and should work with most other cartridges. I recommend that you only use DOS 2 or 2.5 with the utility. To help ease withdrawal symptoms from more sophisticated DOS's, disk users are provided with a resident directory option reading drive 1 (option D on the menu).

The utility leaves all of page 6 addresses (1536 to 1791) and zero page locations 203 to 209 free for your own routines. ●

```
HO 1 REM ********************************
SB 2 REM *        THE NUMERICAL         *
PK 3 REM *     CONVERSIONS UTILITY      *
DE 4 REM *   (AUTORUN DISK CREATOR)     *
YY 5 REM *      by David Manlove        *
SS 6 REM * ---------------------------- *
HC 7 REM * NEW ATARI USER - AUGUST 89 *
WV 8 REM ********************************
NO 9 REM
QA 90 REM READ IN DATA
PP 100 DIM HEX$(102),P$(2):RESTORE 230:FO
   R A=1536 TO 1549:READ B:POKE A,B:NEXT
   A:TRAP 170:MEMADR=20480:RESTORE 250
HU 105 GRAPHICS 0:POSITION 4,1:? "The Num
   erical Conversions Utility"
LN 106 POSITION 11,2:? "Creating disk fil
   e"
OK 110 POKE 82,15:? :? "Reading line";:PO
   KE 82,19:?
AU 120 ? 250+L
HO 130 READ HEX$:FOR H=1 TO 102 STEP 2:P$
   (1)=HEX$(H,H):P$(2)=HEX$(H+1,H+1):H1=A
   SC(P$(1,1)):H2=ASC(P$(2,2)):D2=D2+1
DN 140 H1=H1-7*(H1>64):H2=H2-7*(H2>64):H1
   =H1-48:H2=H2-48:DEC=H1*16+H2
QB 150 POKE MEMADR+(H-1)/2,DEC
VL 160 NEXT H:MEMADR=MEMADR+51:L=L+10:GOT
   O 120
DJ 165 REM WRITE AUTORUN FILE
ZQ 170 POKE 82,2:? ;:IF L+250<>690 THEN ?
    :? "Not enough data in line ";250+L;"
   !":END
GD 175 ? :? "Writing D1:AUTORUN.SYS":? "I
   nsert blank disk with DOS and"
FQ 176 TRAP 215:? "press Return to contin
   ue":POKE 764,255:INPUT P$
ST 180 OPEN #1,8,128,"D:AUTORUN.SYS"
OB 190 POKE 850,11:POKE 852,0:POKE 853,80
   :POKE 858,8
OR 200 A=USR(1536,2267):CLOSE #1
UJ 210 ? "All done":END
UM 215 CLOSE #1:? "Cannot write file":? "
   Error ";PEEK(195);" encountered"
GF 216 ? "Rectify and ";:GOTO 176
DT 220 REM M/C WRITE ROUTINE DATA
WM 230 DATA 104,104,141,89,3,104,141,88,3
   ,162,16,76,86,228
XR 240 REM PROGRAM DATA
FU 250 DATA FFFFFC1CF71D00200000A9220DE70
   2A91E8DE002A9758D2103A91D8D2203A929850
   AA91D650BA9000D211EADFC1CC901F02460
FM 260 DATA A2C220631D8D601D9D00C5CAD0F7A
   9018DFC1CA9008D2103A9E48D2203206C1D4C0
   000A2C220631DBD00C59D601DCAD0F7A900
JQ 270 DATA 8DFC1C206C1D60AD01D329FE8D01D
   360AD01D309018D01D36093EF20F2031DAFF21
   DF22CF24C8EEF204AF208C99BF005EE211E
OC 280 DATA 20600E1F1E0C201EAD211EC907D02
   CA2008D171EDD8005D022E0E007D0F320631D2
   000DD206C1DA900554A99C20B0F2A9FF85
JN 290 DATA 0820CF1D206CFABF20CF1D2060A90
   08D211EA99BAE1F1EAC201E60AD0ED485DAA90
   08D0ED4784C631DA50C8DFE1CA50D8DFF1C
KH 300 DATA A9FD85F81D221E0CA91C850DA50A0
   D4A1DA50B8D4B1D206C1DA9E08DF402A5DA8D0
   ED44C001D434F4E564552549000000000000
JL 310 DATA 066406A2008D00C09D0020E8D0F7E
   E0406EE0706AD0406D0EA0820DD1DA2008D002
   09D00C0E8D0F7EE1E06EE2106AD2106F011
FI 320 DATA C9D0D0E6A9D08D2106A9388D1E064
   C1A06A2008D00E09D00CCE8D0F7EE4506EE400
   6AD4506C9E4D0E8A5DA8D0ED4A9CC8DF402
BH 330 DATA 2860E202E302000600DDF8DDD8A90
   2055220D7E02000FDA900208CE1205BE02070E
   0A9CC8DF402A97085108D0ED2A9EC8DC602
LX 340 DATA 8DC002A9008DC502A92985DAA9E20
   5DBA90D85DCA90185DD208FE04CC9DFADC2E3C
   99BF056A9020555A93685DAA9E385DBA912
ES 350 DATA 85DCA90085DD208FE020F1E1A5DFD
   00320C5E1A90085DFA9028D63E338ADE9E385D
   C29F04A4A4A4AAABD64E320B0F2A5DC290F
ES 360 DATA AABD64E320B0F2ADE8E3CE63E3D0D
   EA99B20B0F2604C00DDA2018DC2E3C99BF004E
   04CA7DDE001D0034C00DD86DE200EE2A905
NH 370 DATA 38E5DEA8A2018DC2E338E930C910B
   00C9974E3E8C8C004D0ED4CE2DD38E9074CD0D
   DAD76E30A0A0A0A186D77E38DE8E3AD74E3
NA 380 DATA 0A0A0A0A6D75E38DE9FCDDF7DEE32
   0C5E1ADE8E385D4ADE9E385D520AAD920E6D0A
   20018BD0005C9808004E84C13DEBD800538
VA 390 DATA E9809D0005E8A5DFD008A99B9D000
   5E806DCA90085DAA90585DBA90085DD208FE00
   0A930A21220BEE1A9020555A95685DAA9E3
JM 400 DATA 85DBA90D85DCA90085DD208FE0A20
   0A9000DE6E3A9000DE7E3ADE9E3CDE7E3300C3
   8EDE7E38DE9E3A9319DC2E34EE7E3E8E000
JQ 410 DATA D0E4A9000DE7E3A9000DE6E3A209A
   DE8E3CDE6E3300C38EDE6E38DE8E3A9319DC2E
   34EE6E3E8E011D0E4A9C285DAA9E385DBA9
KB 420 DATA 1185DCA90085DDA9208DCAE3208FE
   060A2018DC2E3C99BF004E84CCDDEE001F0700
   6DE200EE2A91130E5DEA0A2018DC2E399D4
TR 430 DATA E3E8C8C010D0F4A20006F8DEF3DFD
   A06DBA900BCD4E3C031F00B4AE8E000D0F3A90
   04C1CDF85DCA5DB45DC85DBA5DC4C04DFBC
AX 440 DATA D4E3C031F0244AE8E010D0F3A5DA0
   DE8E3A5DB8DE9E320C5E1ADE8E385D4ADE9E30
   5D5A90285554C0ADE85DCA5DA45DC85DAA5
WV 450 DATA DC4C23DF4C00DDA2018DC2E3C99BF
   05FBDC2E3E8C92CF007E005F0534C60DF0EE4E
   3A9C285F3A9E385F4A90120B3DF20F9E1AD
SO 460 DATA E8E38DE6E3A9C285F3A9E385F4ADE
   4E320B3DF20F9E1200EE2ADE6E385D4ADE8E38
   5D5200ADEA9000DE8E385D44C1BE01065F3
TA 470 DATA 85F3A90065F485F460A9000DE8E38
   5D44C00DDA9FF8DFC0220AEE0ADC2E3C924F02
   4C925F032C944F019C942F012C958F069C9
JB 480 DATA 309007C93AB0034C05E04CF4DFEFE
   000DD4C57DF4CFBE020A5DD2044DE4C1BE0204
   5DD2044DE4C1BE020CBDEA90185DF204CDD
QN 490 DATA 4C1BE0A91780554A9020555A9018DF
   002A97A85DAA9E385DBA91E85DCA90085DD200
   FE0A9FF8DFC02AEFC02E0F0FAADE5E3C901
NE 500 DATA F0034C00DD60205BE02070E0205BE
   060A210A90C9D4203205 6E4A220A90C9D42032
   056E460A210A9039D4203A9089D4A03A902
NE 510 DATA 9D4803A9269D4403A9E29D4503205
   6E460A210A90B9D4203A5DA9D4403A5DB9D450
   3A5DC9D4803A5DD9D4903205 6E46020C9E0
PK 520 DATA A9059D4203A9C285DAA9E385DBA91
   285DCA90085DD4C96E0A9018555A90D8554A93
   E20B0F260A200A9009D74E3E0E006D0F660
PY 530 DATA A9000DE5E34C1BE0A9FD2080F0E0E
   0E1F24C00DDC088D0F44CE4E0A9000DE4E3A90
   18DF00220A8E12089E130DFA2200ED3E3A9
DX 540 DATA 059D4203A9C29D4403A9E39D4503A
   9129D4803A9009D4903205 6E430C4A9C285DAA
   9E385DBA91285DCA90085DD208FE0EEE4E3
WW 550 DATA ADE4E318C9109011C920F01030E90
   E8554A9148085104C0DE14C0DE1ADC2E3C93AB
   007C9309003 4CE4E0A9018DE5E3201BE010
RV 560 DATA A9000DE4E320A0E1A9FF0DFC024C0
   DE1A220A9019D4103A9039D4203A9069D4A03A
   9BB9D4403A9E39D4503205 6E460A99085DA
MS 570 DATA A9E385DBA92385DCA90085DD208FE
   060A2229DC2E3CA10FA60ADE8E385D4A90085D
   5A91E8555C654A90185DF200ADEADE9E385
TQ 580 DATA D4A90085D5A92C20B0F2A90085ECE
   1E7E2DF200ADE60A9C285F3A9E385F4A90085F
   22000D820D2D9A5D48DE8E3A5D58DE9E360
EO 590 DATA A9028555A94885DAA9E385DBA90E0
   5DCA90085DD208FE060453A9B1D2020D4E8E5A
   0CEF5EDE5F2E9E3E1ECA0C3EFEEF6E5F2F3
RX 600 DATA E9EFEEF3A0D5F4E9ECE9F4F99B202
   0202020202020202020204279204461766964
   04D616E6C6F76659B1D456E7465723A9B1D
JW 610 DATA 6E6E6E6E20666F7220C4E5E3E9E
   DE1EC20746F20C8E5F8202020202020B20C2E9E
   EE1F2F99B246E6E6E6E20666F7220C8E5F8
ZV 620 DATA 2020202020746F20C4E5E3E9EDE1E
   C202B20C2E9EEE1F2F99B256E6E6E6E20666F7
   220C2E9EEE1F2F92020746F20C4E5E3E9ED
UX 630 DATA E1EC202B20C8E5F89B426C6F2C68E
   8E273E36920746F20E3E1ECE3F5ECE1F4E5202
   0ECEFABA8E8E9AAB285B6A99B4420202020
AY 640 DATA 20666F7220C4E9F3EBA0C4E9F2E5E
   3F4EFF2F99B8820202020202020746F2020CCE5E1F
   6E5A0F0F2EFE7F2E1EDA09B1DC8E5F8E1E4
RE 650 DATA E5E3E9EDE1ECA0E9F3BA1D9B1DC4E
   5E3E9EDE1ECA0E9F3BA1D9B1DC2E9EEE1F2F9A
   0E9F3BA1D9BEA303132333435363738394 1
FK 660 DATA 42434445467AE3C1E320202020202
   020D0F2E5F3F3A0D3F0E1E3E5A0D4EFA0C3EFE
   EF4E9EEF5E57D2020202020C1F4E1F2E9A0C4
RF 670 DATA E9F3EBA0C4E9F2E5E3F4EFF2F9A0D
   5F4E9ECE9F4F91D9B44313A2A2E2A9BE4E3E9E
   30000000000000000FD4AFDA0BFA9209951FB
BC 680 DATA 88C0FFD0F6A2000BD1FFDA0E0BD1FF
   D9951FBE8E02CD0F06032301F311E321A33183
   41D351B36333735383039580243F41154212
TV 690 DATA 433A442A4538465D25347E16580C9
   B202CE002E102EB1D
```

NUMERICAL CONVERSIONS UTILITY - Listing 1 for disk

Listing 2 overleaf

```
WO 1 REM ********************************
SB 2 REM *       THE NUMERICAL          *
PX 3 REM *    CONVERSIONS UTILITY       *
SP 4 REM * (AUTORUN CASSETTE CREATOR)   *
YY 5 REM *       by David Manlove       *
SS 6 REM * --------------------------- *
HC 7 REM * NEW ATARI USER - AUGUST 89 *
WV 8 REM ********************************
NO 9 REM
QA 90 REM READ IN DATA
PP 100 DIM HEX$(102),P$(2):RESTORE 230:FO
   R A=1536 TO 1549:READ B:POKE A,B:NEXT
   A:TRAP 170:MEMADR=20480:RESTORE 250
HU 105 GRAPHICS 0:POSITION 4,1:? "The Num
   erical Conversions Utility"
DM 106 POSITION 9,2:? "Creating cassette
   file"
OK 110 POKE 82,15:? :? "Reading line";:PO
   KE 82,19:?
AU 120 ? 250+L
IW 130 READ HEX$:FOR H=1 TO 102 STEP 2:P$
   (1)=HEX$(H,H):P$(2)=HEX$(H+1,H+1):H1=A
   SC(P$(1,1)):H2=ASC(P$(2,2))
DN 140 H1=H1-7*(H1>64):H2=H2-7*(H2>64):H1
   =H1-48:H2=H2-48:DEC=H1*16+H2
QB 150 POKE MEMADR+(H-1)/2,DEC
VL 160 NEXT H:MEMADR=MEMADR+51:L=L+10:GOT
   O 120
KN 165 REM WRITE CASSETTE FILE
SS 170 POKE 82,2:? ;:IF L+250<>630 THEN ?
    :? "Not enough data in line ";250+L;"
   !":END
YM 175 ? :? "Writing to Cassette":? "Inse
   rt blank cassette and "
OL 176 TRAP 215:? "press Return to contin
   ue":POKE 764,255
UH 180 OPEN #1,8,128,"C:"
OB 190 POKE 850,11:POKE 852,0:POKE 853,80
   :POKE 858,8
MS 200 A=USR(1536,2048):CLOSE #1
UJ 210 ? "All done":END
UM 215 CLOSE #1:? "Cannot write file":? "
   Error ";PEEK(195);" encountered"
GF 216 ? "Rectify and ";:GOTO 176
DT 220 REM M/C WRITE ROUTINE DATA
WM 230 DATA 104,104,141,89,3,104,141,88,3
   ,162,16,76,86,228
XR 240 REM PROGRAM DATA
NR 250 DATA 00106D060007A93C8D02D3A900850
   AA907850B2065061860A200BD00C09D0040E8D
   0F7EE8906EE8C06AD8906D0EA062080207A2
UA 260 DATA 00BD00409D00C0E8D0F7EEA306EEA
   606ADA606F011C9D0D0E6A9D08DA606A9580DA
   3064C9F06A200BD00E09D00CCE8D0F7EECA
LG 270 DATA 06EECD06ADCA06C9E4D0E8A200BD0
   0089D00DDE8D0F7EEE206EEE506ADE206C90FD
   0E8209607A5DA8D0ED42860A9AA8DE702A9
PP 280 DATA 078DE802A91A8D2103A9078D2203A
   9008DA9076093EF2DF22807AFF21DF22CF24C6
   EEF204AF208C99BF005EEA9072860 8EA707
XM 290 DATA 8CA807ADA907C907D02CA2008D9F0
   7DD8005D022E8E007D0F3208D072000DD20960
   7A9008554A99C20B0F2A9FF850820740728
EQ 300 DATA 6CFABF2074072860A9008DA907A99
   BAEA707ACA80760AD0ED485DAA9008D0ED478A
   D01D329FE8D01D360AD01D309018D01D360
CU 310 DATA 434F4E5645525449B000000000000
   000000000000000000000000000000000000000
   0000000000000000000000000000000000
TH 320 DATA 00000000000000000000000000000
   000000000000000000000000000000000000000
   000000000000000000000000D8A9028552
EW 330 DATA 20CCE020C3E2A90020D9E02050E02
   065E0A9CC8DF402A97085108D0ED2A9EC8DC60
   28DC802A9008DC502A94685DAA9E185DBA9
SI 340 DATA F485DCA90085DD2084E04CCDDFAD9
   CE2C99BF056A9028555A93A85DAA9E285DBA91
   285DCA90085DD2084E0200EE1A5DFD00320
OW 350 DATA E2E0A90085DFA9028D67E238ADC2E
   285DC29F04A4A4A4AAABD68E220B0F2A5DC290
   FAABD68E220B0F2ADC1E2CE67E2D0DEA99B
FQ 360 DATA 20B0F2604C00DDA201BD9CE2C99BF
   004E84CA7DDE001D0034C00DD86DE202BE1A90
   530E5DEA8A201BD9CE238E930C910B00C99
UV 370 DATA 78E2E8C8C004D0ED4CE2DD38E9074
   CD0DDAD7AE20A0A0A0A186D7BE285D48DC1E2A
   D78E20A0A0A0A6D79E285D58DC2E220E2E0
RS 380 DATA ADC1E285D4ADC2E285D520AAD920E
   6D8A20018BD8005C960B004E84C17DEBD80053
   8E9809D8005E8A5DFD006A99B9D8005E886
ZY 390 DATA DCA98085DAA90585DBA90085DD208
   4E060A930A21220DBE0A9028555A95A85DAA9E
   285DBA90D85DCA90085DD2084E0A200A900
WA 400 DATA 8DBFE2A9808DC0E2ADC2E2CDC0E23
   00C38EDC0E28DC2E2A9319D9CE24EC0E2E8E00
   8D0E4A9008DC0E2A9808DBFE2A209ADC1E2
QS 410 DATA CDBFE2300C38EDBFE28DC1E2A9319
   D9CE24EBFE2E8E011D0E4A99C85DAA9E285DBA
   91185DCA90085DDA9208DA4E22084E060A2
GF 420 DATA 01BD9CE2C99BF004E84CD1DEE001F
   07686DE202BE1A91138E5DEA8A201BD9CE299A
   EE2E8C8C010D0F4A20086DA86DBA980BCAE
AP 430 DATA E2C031F0084AE8E008D0F3A9804C2
   0DF85DCA5DB45DC85DBA5DC4C08DFBCAEE2C03
   1F0244AE8E010D0F3A5DA8DC1E2A5DB8DC2
SQ 440 DATA E220E2E0ADC1E285D4ADC2E285D5A
   90285554C0EDE85DCA5DA45DC85DAA5DC4C27D
   F4C00DDA201BD9CE2C99BF05FBD9CE2E8C9
TY 450 DATA 2CF007E005F0534C64DF0EBEE2A99
   C85F3A9E285F4A90120B7DF2016E1ADC1E20DB
   FE2A99C85F3A9E285F4AD8EE220B7DF2016
DA 460 DATA E1202BE1AD8FE285D4ADC1E285D52
   00EDEA9008DC1E285D44C18E01865F385F3A90
   065F485F460A9008DC1E285D44C00DDA9FF
TW 470 DATA 8DFC0220A3E0AD9CE2C924F01DC92
   5F02BC942F012C958F05EC9309007C93AB0034
   C02E04C00DD4C5BDF20A5DD2048DE4C18E0
MF 480 DATA 2045DD2048DE4C18E020CFDEA9018
   5DF204CDD4C18E0A9178554A9028555A9018DF
   002A97E85DAA9E285DBA91E85DCA90085DD
FW 490 DATA 2084E0A9FF8DFC02AEFC02E8F0FA4
   C00DD2050E02065E02050E060A210A90C9D420
   32056E4A220A90C9D42032056E460A210A9
FT 500 DATA 039D4203A9089D4A03A9029D4B03A
   9439D4403A9E19D45032056E460A210A90B9D4
   203A5DA9D4403A5DB9D4503A5DC9D4803A5
UN 510 DATA DD9D49032056E46020BEE0A9059D4
   203A99C85DAA9E285DBA91285DCA90085DD4C8
   BE0A9018555A90D8554A93E20B0F260A200
TR 520 DATA A9009D70E2E8E006D0F660A2229D9
   CE2CA10FA60ADC1E285D4A90085D5A91E8555C
   654A90185DF200EDEADC2E285D4A90085D5
FC 530 DATA A92C20B0F2A90085DF200EDE60A99
   C85F3A9E285F4A90085F22000D820D2D9A5D48
   DC1E2A5D58DC2E260A9028555A94C85DAA9
AU 540 DATA E285DBA90E85DCA90085DD2084E06
   0453A9B1D2020D4E8E5A0CEF5EDE5F2E9E3E1E
   CA0C3EFEEF6E5F2F3E9EFEEF3A0D5F4E9EC
XP 550 DATA E9F4F99B2020202020202020202020
   02042792044617669642040616E6C6F7665981
   D456E7465723A9B1D6E6E6E6E6E20666F72
PO 560 DATA 20C4E5E3E9EDE1EC20746F20C8E5F
   8202020202020B20C2E9EEE1F2F99B246E6E6E6
   E20666F7220C8E5F820202020202020746F20C4
PL 570 DATA E5E3E9EDE1EC202B20C2E9EEE1F2F
   99B256E6E6E6E20666F7220C2E9EEE1F2F9202
   0746F20C4E5E3E9EDE1EC202B20C8E5F89B
RF 580 DATA 426C6F2C686920746F20E3E1ECE3F
   5ECE1F4E52020ECEFABA8E8E9AAB285B6A99B5
   820202020202020746F2020CCE5E1F6E5A0F0F2
JU 590 DATA EFE7F2E1EDA09B1DC8E5F8E1E4E5E
   3E9EDE1ECA0E9F3BA1D9B1DC4E5E3E9EDE1ECA
   0E9F3BA1D9B1DC2E9EEE1F2F9A0E9F3BA1D
BE 600 DATA 9BEA303132333435363738394142 4
   34445463132333435362020202020200D0F2E
   5F3F3A0D3F0E1E3E5A0D4EFA0C3EFEEF4E9
VH 610 DATA EEF5E5313233343536373839303131
   2333435363738313233343536373839303132 3
   33435360000000000A0BFA9209951FB88C0
FI 620 DATA FFD0F6A200BDE2E2A8E8BDE2E2995
   1FBE8E02CD0F06032301F311E321A3318341D3
   51836333735383039502 43F411542124 33A
CA 630 DATA 442A4538465D25347E16580C9B202
   C
```

NUMERICAL CONVERSIONS UTILITY - Listing 2 for Cassette

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* GROUPING OF OBJECTS

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PLEASE SEND FREE LITERATURE ON THE ATARI ST

Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

....

Postcode: ....

Do you already own a computer
If so, which one do you own?

DTP ☐

THE CASSETTE DATABASE

NOW IT WORKS!

This issue Ian Finlayson's database finally reaches a stage where it can be used with only a few routines left to add refinements

If you have typed in the first two parts of the address book database I have some good news and some bad news for you. First the bad news - there is quite a lot more typing to do this time. Next the good news - when this listing is added the database starts to be useful, all the functions work except sorting.

As the program has developed I have been a little surprised at its complexity. Not that the individual modules have been particularly difficult to program, but the inter-relationship between the modules is quite tight. You will see this time that I have changed selection 3 on the main menu to include both Viewing and Editing records. This is because it became apparent as I went along that these two functions would be functionally very similar.

The procedure for combining the two previous program chunks and this one is as follows. Type each listing, check it carefully with Typo 3 and list it to tape with 'LIST "C:"', then ENTER each in turn. Be sure to enter them in the same order as they were published, as the later listings deliberately overwrite some of the earlier lines. The combined listing can be resaved in a LISTed version ready to add the next instalment and can also be saved separately with CSAVE if desired for future use. Now on to a description of this edition's listing.

BITS AND PIECES

First you will see there are a few lines which are not part of the main modules:

Line 35 - This sets the values for the starting line numbers of two extra subroutines introduced this time for retrieving records from the database and printing a record.

Line 1030 - This new line for selection 3 in the main menu will replace the old.

Lines 2000 and 2040 - replace the old lines. The old 2000 was nonsense and I only found the fault when testing the more complete program this time. The new 2040 is a better way of clearing out data than I had used before, it completely removes DAT$ where the old routine only reduced it to a string of blank spaces.

Line 6000 - this is changed as I have found that my previous use of R as a variable for the total number of records was not suitable when going into the middle of the database to look at, modify or delete records. R is now used for the number of the record currently being looked at - this has to be set to the last record plus one when we are going to add a new record.

Lines 8000 and 8025 - these are changed for the same reason as 2000 and 2040.

ROUTINE TO VIEW AND EDIT RECORDS

Starting at line 4000, this routine first clears the screen and prompts for a record number to be viewed. The input is trapped so an error will not occur if a nonsense entry such as a letter instead of a number is entered, and a check is made to see if the number is valid. If too high a number is input a prompt is given and the program returns to line 4001 for another try. If zero (or any number less than one) is input the program returns to the main menu.

Assuming a valid record has been chosen the program goes to the new subroutine RETRIEVE at line 13500. This gets the record R$ from the data DAT$ and then splits it into the individual fields F1$ to F8$. Then the two subroutines Screendraw and Ffill, which were introduced in the last article, are used to draw the screen and display the data from the record on it.

Next we print below the displayed data the following prompts:

E to edit the record
Q to quit (return to main menu)
G to go to another record
+ or - to step up or down one record

The keypress is checked and the program branches accordingly. If you follow the steps they are all quite simple except the Edit option which starts at 4140. This can be compared with the Add Record routine from last time and you will see that it is very similar except that it starts with an existing record in place ready to be modified.

DELETE RECORDS

The routine for deleting records starts at line 5000. I debated whether to provide a routine to delete a block of records but decided to stick to deleting one record at a time. It would be too easy to make a mistake and delete records inadvertently otherwise. The sequence is very similar to the Edit/View routine as it displays the record first and then gives the option of deleting the displayed record, stepping to another record or quitting back to the main menu. There are two program lines which actually do the deleting of data, line 5132 deletes the last 115 characters of data if the selected record is the last in the database. In all other cases line 5133 is used to move all data from behind the record selected for deletion forward by 115 characters so that that record is overwritten and thus eliminated. Finally, if there are no records left in the database after the deletion there is a prompt and return to the main menu, otherwise the next record is displayed.

PRINT ROUTINE

The print routine allows the printing of one record, a block of records or all records. All these options use the same Print Record subroutine at line 13600 to do the printing. The single record print uses the same format as the View/Edit routine to display a record before it is printed while the other two use For Next loops to repeat the printing process without displaying individual records on screen.

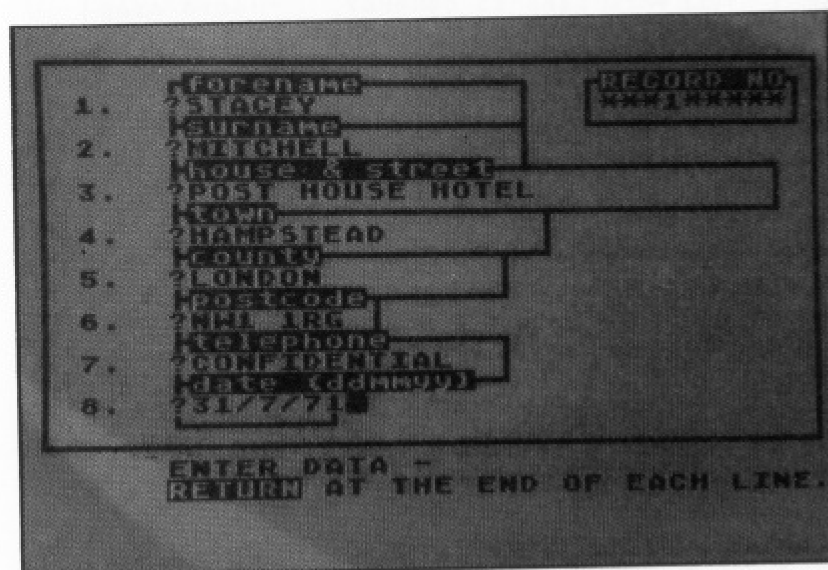
continued on page 22

```
WO 1 REM ******************************
AA 2 REM *     TUTORIAL SUBROUTINE     *
CO 3 REM *     ADDRESS BOOK PART 3     *
XT 4 REM *            by               *
CN 5 REM *        Ian Finlayson        *
OF 6 REM *-----------------------------*
HC 7 REM * NEW ATARI USER - AUGUST 89 *
WV 8 REM ******************************
NO 9 REM
OH 35 RETRIEVE=13500:PRINREC=13600
HT 1030 ? "     V- VIEW/EDIT RECORDS"
ZF 2000 IF LEN(DAT$)<100 THEN 2050
UF 2040 DAT$=""
IS 3999 REM *** EDIT RECORD ***
KT 4000 ? "↖"
PG 4001 ? "↓↓↓→ENTER NUMBER OF RECORD TO"
   :? "→VIEW/EDIT"
BB 4010 ? "↓↓→→";:TRAP 4000
KA 4015 INPUT R:TRAP 40000
XW 4020 IF R<1 THEN RETURN
MG 4025 IF R>LEN(DAT$)/115 THEN ? "↖ NO S
   UCH RECORD IN CURENT DATABASE":GOTO 40
   01
BO 4030 GOSUB RETRIEVE
JM 4040 GOSUB SCREENDRAW
QD 4050 GOSUB FFILL
RK 4060 POSITION 8,19:? "E - EDIT
     Q - QUIT        "
EW 4070 POSITION 8,20:? "G - GOTO ANOTHER
    RECORD          "
IZ 4080 POSITION 8,21:? "+/- STEP UP OR D
   OWN RECORDS     "
OG 4090 GOSUB KEYPRESS
ES 4100 IF KEY=43 THEN R=R+1:GOTO 4020
HT 4110 IF KEY=45 THEN R=R-1:GOTO 4020
IV 4120 IF KEY=71 THEN 4000
OY 4125 IF KEY=81 THEN RETURN
WT 4130 IF KEY<>69 THEN 4060
FB 4140 GOSUB FINPUT
JM 4150 GOSUB SCREENDRAW
QI 4160 GOSUB FFILL
WS 4170 POSITION 8,19:? "IS THIS RECORD C
   ORRECT?          ":POSITION 8,20:? "
                                      "
OF 4180 GOSUB KEYPRESS
NI 4190 IF KEY=89 OR KEY=121 THEN 4210
PX 4200 POSITION 8,19:? "AMEND RECORDS -
        ":POSITION 8,20:? "RETU
   RN WHEN LINE IS CORRECT.    ":GOTO 4140
TJ 4210 R$=F1$:R$(16,30)=F2$:R$(31,57)=F3
   $:R$(58,73)=F4$:R$(74,87)=F5$
NB 4220 R$(88,95)=F6$:R$(96,109)=F7$:R$(1
   10,115)=F8$
DI 4230 DAT$(R*115-114,R*115)=R$
RO 4240 GOTO 4060
MI 4999 REM ***DELETE RECORD***
KU 5000 ? "↖"
TM 5001 ? "↓↓↓→ENTER NUMBER OF RECORD TO"
   :? "→           DELETE"
BX 5010 ? "↓↓→→";:TRAP 5000
KB 5015 INPUT R:TRAP 40000
XX 5020 IF R<1 THEN RETURN
PE 5025 IF R>LEN(DAT$)/115 THEN ? "↖ NO S
   UCH RECORD IN CURENT DATABASE":GOTO 50
   01
BP 5030 GOSUB RETRIEVE
JI 5040 GOSUB SCREENDRAW
QE 5050 GOSUB FFILL
GE 5060 POSITION 8,19:? "D - DELETE
     Q - QUIT        "
EX 5070 POSITION 8,20:? "G - GOTO ANOTHER
    RECORD          "
JA 5080 POSITION 8,21:? "+/- STEP UP OR D
   OWN RECORDS     "
OH 5090 GOSUB KEYPRESS
FZ 5100 IF KEY=43 THEN R=R+1:GOTO 5020
JA 5110 IF KEY=45 THEN R=R-1:GOTO 5020
JR 5120 IF KEY=71 THEN 5000
OZ 5125 IF KEY=81 THEN RETURN
XB 5130 IF KEY<>68 THEN 5060
TV 5132 IF R=LEN(DAT$)/115 THEN R=R-1:DAT
   $(115*R+1)="":GOTO 5136
NX 5134 DAT$(115*R-114)=DAT$(115*R+1)
ND 5136 IF R=0 THEN ? "↖↓↓↓NO RECORDS LEF
   T IN THIS DATABASE":FOR T=1 TO 500:NEX
   T T:RETURN
QL 5140 GOTO 5030
RN 6000 R=LEN(DAT$)/115+1:GOSUB SCREENDRA
   W
IK 8000 IF LEN(DAT$)<100 THEN 8025
PZ 8002 ? "*** LOAD DATA ***"
UZ 8025 DAT$=""
IK 8999 REM ***   PRINT OUT   ***
ZZ 9000 ? "↖→*** PRINT RECORDS ***"
VW 9001 ? "↓↓↓→ALL RECORDS":? "↓→GROUP OF
    RECORDS":? "↓→ONE RECORD (VIEW FIRST)
   ":? "↓MAKE SELECTION"
NN 9010 GOSUB KEYPRESS
JP 9020 IF KEY=65 THEN FOR R=1 TO LEN(DAT
   $)/115:GOSUB RETRIEVE:GOSUB PRINREC:NE
   XT R:RETURN
SK 9030 IF KEY=71 THEN 9060
SJ 9040 IF KEY=79 THEN 9100
QV 9050 GOTO 9000
AX 9060 TRAP 9060:? "↓→ENTER NUMBER OF FI
   RST RECORD ";:INPUT FIRST
IR 9065 IF FIRST<1 OR FIRST>LEN(DAT$)/115
   -1 THEN ? "***INVALID STARTING RECORD*
   **":FOR N=1 TO 500:NEXT N:GOTO 9000
LY 9070 ? "↓→ENTER NUMBER OF LAST RECORD
   ";:INPUT LAST:TRAP 40000
YG 9075 IF LAST<=FIRST OR LAST>LEN(DAT$)/
   115 THEN ? "***INVALID RANGE OF RECORD
   S***":FOR N=1 TO 500:NEXT N:GOTO 9000
CA 9080 FOR R=FIRST TO LAST:GOSUB RETRIEV
   E:GOSUB PRINREC:NEXT R:RETURN
BN 9100 TRAP 9100:? "↓↓↓→ENTER NUMBER OF
   RECORD TO":? "→DISPLAY AND PRINT ";
JN 9110 INPUT R:TRAP 40000
YD 9120 IF R<1 THEN RETURN
AF 9130 IF R>LEN(DAT$)/115 THEN ? "↖ NO S
   UCH RECORD IN CURENT DATABASE":GOTO 91
   00
BY 9140 GOSUB RETRIEVE
JR 9150 GOSUB SCREENDRAW
QN 9160 GOSUB FFILL
FC 9170 POSITION 8,19:? "P - PRINT
     Q - QUIT        "
FG 9180 POSITION 8,20:? "G - GOTO ANOTHER
    RECORD          "
JJ 9190 POSITION 8,21:? "+/- STEP UP OR D
   OWN RECORDS     "
NO 9200 GOSUB KEYPRESS
MN 9210 IF KEY=43 THEN R=R+1:GOTO 9120
PO 9220 IF KEY=45 THEN R=R-1:GOTO 9120
OC 9230 IF KEY=71 THEN 9100
OR 9240 IF KEY=81 THEN RETURN
ZE 9250 IF KEY<>80 THEN 9170
TO 9260 GOSUB PRINREC
BG 9270 RETURN
LA 13499 REM **RETRIEVE RECORD***
XF 13500 R$=DAT$(R*115-114,R*115)
KF 13510 F1$=R$(1,15)
UW 13520 F2$=R$(16,30)
ZR 13530 F3$=R$(31,57)
DU 13540 F4$=R$(58,73)
GL 13550 F5$=R$(74,87)
JA 13560 F6$=R$(88,95)
RK 13570 F7$=R$(96,109)
VB 13580 F8$=R$(110,115)
FC 13590 RETURN
WA 13599 REM **PRINT RECORD***
CY 13600 OPEN #1,8,0,"P:"
JO 13602 N=15
FC 13604 IF F1$(N,N)=" " THEN N=N-1:GOTO
   13604
VO 13606 F1$=F1$(1,N)
UJ 13610 ? #1;F1$;" ";F2$
OH 13620 ? #1;F3$
OY 13630 ? #1;F4$
JQ 13632 N=14
MC 13634 IF F5$(N,N)=" " THEN N=N-1:GOTO
   13634
ZC 13636 F5$=F5$(1,N)
VK 13640 ? #1;F5$;"    ";F6$
QP 13650 ? #1
QX 13660 ? #1;F7$
RO 13670 ? #1;F8$
XF 13680 ? #1:CLOSE #1:RETURN
```

Ian Finlayson's Cassette Database

The format of the printout is in the print subroutine, and this can be easily changed to suit your requirements. I have chosen to print Forename and Surname on one line, and also County and Postcode on one line further down. All other fields have a line of their own and an additional separator line is put in between the bottom of the address and the Telephone and Date fields. This subroutine can be quickly and easily tailored to meet specific requirements. For instance you need not print fields 7 and 8 at all if you just want an address list. If you have not got a printer change line 13600 to 'Open #1,8,0,"S:"' and the program will print to the screen instead - the records are displayed very briefly so it is easier to use the View/Edit option to look at them unless you put a delay loop in the print subroutine.

Lines 13604 and 13634 need some explanation. They are there to strip off trailing blank spaces from the fields which are first on a line shared with another field. If this is not done there will be an unpredictable space between the end of the first entry and the start of the second entry on the line. This looks very ragged, particularly with a short forename before a surname. Someone called Jim would have twelve spaces between his forename and surname while Constantine would only have four! You may wonder why the forename field is so long, I have done it deliberately as it allows flexibility to put in titles and initials if required, such as "Dr Thomas J." for example.



AND NEXT ....

Next time I will finish off with a routine to sort the database into order and do a bit of tidying up, also give a brief set of instructions for inclusion in the opening part of the program.

Many thanks to those who have written to me about the program, especially Roald in Norway who has passed me a tip that I will use in the tidying up process next time. I hope the addition of these modules to the program makes the use of the whole database much clearer. If you are having difficulty write to me enclosing a stamped envelope for a reply. Before writing please study the listing carefully and read the accompanying article, then be specific about your problem as this makes it much easier to give detailed help. I have not got time to expound the whole program in detail to every enquirer.

Write to Ian Finlayson, 60 Roundstone Crescent, East Preston, West Sussex, BN16 1DQ.

CATCH DAY

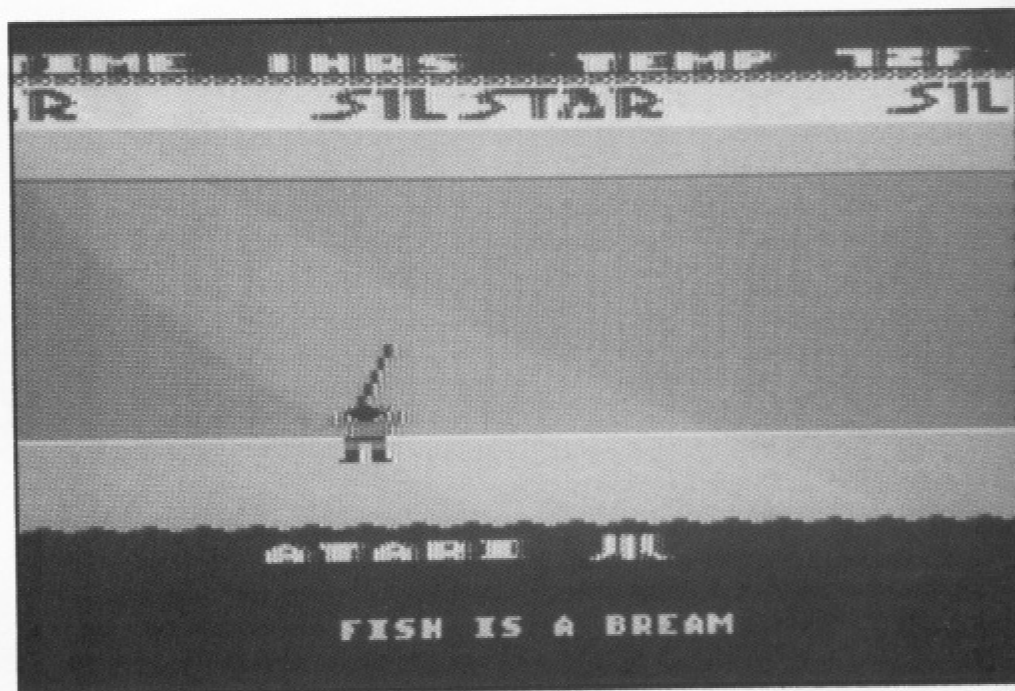
Try your hand at Championship fishing with this multi-featured simulation by Robert Davies

Catch day is the most prized European Fishing competition ever and you have been invited to represent your country. You must battle your way through a qualifying round against two other expert anglers in order to qualify for the final. This first round and the final each last about 5 hours during which time you must catch the greatest weight of fish. If you fail the qualifying round then you are out of the tournament as only one person can qualify. If you reach the final then you battle it out against the winner of Group 2 for the coveted title of Catch Day champion. That's what you have to aim for, read on for how to do it.

The on screen prompts will be self explanatory and all responses are just a single key for a number or letter. A joystick will be required to throw the groundbait and cast your hook and to play the fish when it bites. Once you have cast, the fish will begin to bite and you must press the trigger exactly as a fish bites in order to hook it, then play it to the bank by using the joystick. Once landed you will be informed of the type of fish and its weight and can then cast again. At this point you may simply cast again with the same bait, groundbait again by pressing START, change bait by pressing SELECT or change your style of fishing by pressing OPTION. The timer will continue to count the minutes so you must make your decisions quickly.

Keep on catching fish until the timer reaches 5 hours (about 8 minutes real time) and hope that you have caught enough. Your total weight will be displayed and, after a short delay, the overall results will be displayed. Your target weight is about 150lbs which will be dependant on the type of fish caught and the waters. The target will be easier to reach on some waters than on others. Some fish will not be found in certain waters.

Practice makes perfect and you will understand the game more after one or two plays. Good luck with Catch Day. If you are not an angler it sure beats sitting on a wet and windy river bank all day and if you are committed to the sport then Catch Day will keep you occupied in the evenings. Night fishing for real is none too easy!





READY TO RUN
(or ready to catch!)

If you don't fancy all that typing, you can get Catch Day ready to run on this Issue's disk, which also contains all the other listings in this Issue plus the BONUS program. Just send £2.95 to Page 6, P.O. Box 54, Stafford, ST16 1DR and ask for Issue 39 disk. You may use the order form on page 49

CATCH DAY

```
HO 1 REM ####################################
ZD 2 REM *            CATCH DAY             *
ZC 3 REM *                                  *
EL 4 REM *        by Robert Davies          *
ZE 5 REM *                                  *
55 6 REM * -------------------------------- *
HC 7 REM * NEW ATARI USER - AUGUST 89 *
WV 8 REM ####################################
NO 9 REM
KL 10 DIM T$(2),BA$(2),G$(2),R1$(19),R2$(
   19),C$(15),OP1$(15),OP2$(15),OP3$(15),
   OP4$(15),OP5$(15),DT$(20),W1$(20)
YM 11 DIM W2$(20),F$(10),FL1$(20),FL2$(20
   ),N$(10),MES$(200)
XD 12 RMTP=PEEK(106):POKE 106,RMTP-16
5N 13 REM *** SET-UP-***
OA 14 POKE 106,RMTP-4:GRAPHICS 1:CBAS=RMT
   P-4:AD=CBAS*256:POKE 729,0
EO 15 GOSUB 9900:FOR I=0 TO 1023:POKE AD+
   I,PEEK(57344+I):NEXT I
YM 20 FOR CH=1 TO 3:POS=AD+(CH*8):FOR I=0
    TO 7:READ A:POKE POS+I,A:NEXT I:NEXT
   CH
JJ 22 RESTORE 9600:FOR CH=6 TO 13:POS=AD+
   (CH*8):FOR I=0 TO 7:READ A:POKE POS+I,
   A:NEXT I:NEXT CH
LD 24 FOR CH=26 TO 32:POS=AD+(CH*8):FOR I
   =0 TO 7:READ A:POKE POS+I,A:NEXT I:NEX
   T CH
PV 25 FOR CH=59 TO 62:POS=AD+(CH*8):FOR I
   =0 TO 7:READ A:POKE POS+I,A:NEXT I:NEX
   T CH
MH 26 FOR CH=16 TO 25:POS=AD+(CH*8):FOR I
   =0 TO 7:READ A:POKE POS+I,A:NEXT I:NEX
   T CH
YV 27 RESTORE 9800:FOR CH=33 TO 58:POS=AD
   +(CH*8):FOR I=0 TO 7:READ A:POKE POS+I
   ,A:NEXT I:NEXT CH
SL 30 POKE 756,CBAS:DATA 255,255,255,255,
   255,255,255,255,255,127,127,63,63,127,
   127,255
ZB 35 DATA 255,254,254,252,252,254,254,25
   5
FI 40 GOSUB 9500:GOSUB 9200
NL 90 FL1$="":FL2$=""
GQ 100 F=0:LB=0:IF FL1$<>"" THEN 360
IG 105 ? #6;"K"
ZJ 110 SETCOLOR 4,11,11:SETCOLOR 2,11,11:
   SETCOLOR 0,2,4:SETCOLOR 1,0,15:SETCOLO
   R 3,12,2:POSITION 0,0:POKE 1634,187
MQ 115 ? #6;"CHOOSE YOUR COUNTRY"
IT 120 POSITION 5,3:? #6;"1.england":POSI
   TION 5,5:? #6;"2.ireland":POSITION 5,7
   :? #6;"3.DENMARK":POSITION 5,9
DA 125 ? #6;"4.sweden":POSITION 5,11:? #6
   ;"5.FRANCE":POSITION 5,13:? #6;"6.AUST
   RIA"
NA 130 ? #6:? #6:? #6:? #6;"PRESS NO. OF
   CHOICE"
XF 150 CLOSE #1:OPEN #1,4,0,"K:"
GK 160 GET #1,A:A=A-48:IF A<0 OR A>6 THEN
    160
HM 170 ON A GOTO 180,190,200,210,220,230
DK 180 C$="england":GOTO 250
DC 190 C$="ireland":GOTO 250
JG 200 C$="DENMARK":GOTO 250
IB 210 C$="sweden":GOTO 250
QE 220 C$="FRANCE":GOTO 250
UF 230 C$="AUSTRIA"
LH 250 A=INT(RND(0)*5):IF C$<>"england" T
   HEN 260
BH 251 IF A=0 THEN OP1$="ireland":OP2$="D
   ENMARK":OP3$="sweden":OP4$="FRANCE":OP
   5$="AUSTRIA"
MB 252 IF A=1 THEN OP1$="DENMARK":OP2$="s
   weden":OP3$="FRANCE":OP4$="AUSTRIA":OP
   5$="ireland"
GS 253 IF A=2 THEN OP1$="sweden":OP2$="FR
   ANCE":OP3$="AUSTRIA":OP4$="ireland":OP
   5$="DENMARK"
DT 254 IF A=3 THEN OP1$="FRANCE":OP2$="AU
   STRIA":OP3$="ireland":OP4$="DENMARK":O
   P5$="sweden"
WS 255 IF A=4 THEN OP1$="AUSTRIA":OP2$="i
   reland":OP3$="DENMARK":OP4$="sweden":O
   P5$="FRANCE"
NU 258 GOTO 310
OG 260 IF C$<>"ireland" THEN 270
KB 261 IF A=0 THEN OP1$="england":OP2$="D
   ENMARK":OP3$="sweden":OP4$="FRANCE":OP
   5$="AUSTRIA"
KR 262 IF A=1 THEN OP1$="DENMARK":OP2$="s
   weden":OP3$="FRANCE":OP4$="AUSTRIA":OP
   5$="england"
FS 263 IF A=2 THEN OP1$="sweden":OP2$="FR
   ANCE":OP3$="AUSTRIA":OP4$="england":OP
   5$="DENMARK"
UL 264 IF A=3 THEN OP1$="FRANCE":OP2$="AU
   STRIA":OP3$="england":OP4$="DENMARK":O
   P5$="sweden"
FC 265 IF A=4 THEN OP1$="AUSTRIA":OP2$="e
   ngland":OP3$="DENMARK":OP4$="sweden":O
   P5$="FRANCE"
MM 268 GOTO 310
GJ 270 IF C$<>"DENMARK" THEN 280
BF 271 IF A=0 THEN OP1$="england":OP2$="i
   reland":OP3$="sweden":OP4$="FRANCE":OP
   5$="AUSTRIA"
MK 272 IF A=1 THEN OP1$="ireland":OP2$="s
   weden":OP3$="FRANCE":OP4$="AUSTRIA":OP
   5$="england"
YF 273 IF A=2 THEN OP1$="sweden":OP2$="FR
   ANCE":OP3$="AUSTRIA":OP4$="england":OP
   5$="ireland"
JM 274 IF A=3 THEN OP1$="FRANCE":OP2$="AU
   STRIA":OP3$="england":OP4$="ireland":O
   P5$="sweden"
WR 275 IF A=4 THEN OP1$="AUSTRIA":OP2$="e
   ngland":OP3$="ireland":OP4$="sweden":O
   P5$="FRANCE"
NY 278 GOTO 310
PY 280 IF C$<>"sweden" THEN 290
KV 281 IF A=0 THEN OP1$="england":OP2$="i
   reland":OP3$="DENMARK":OP4$="FRANCE":O
   P5$="AUSTRIA"
IY 282 IF A=1 THEN OP1$="ireland":OP2$="D
   ENMARK":OP3$="FRANCE":OP4$="AUSTRIA":O
   P5$="england"
AI 283 IF A=2 THEN OP1$="DENMARK":OP2$="F
   RANCE":OP3$="AUSTRIA":OP4$="england":O
   P5$="ireland"
KP 284 IF A=3 THEN OP1$="FRANCE":OP2$="AU
   STRIA":OP3$="england":OP4$="ireland":O
   P5$="DENMARK"
PS 285 IF A=4 THEN OP1$="AUSTRIA":OP2$="e
   ngland":OP3$="ireland":OP4$="DENMARK":
   OP5$="FRANCE"
OA 288 GOTO 310
UM 290 IF C$<>"FRANCE" THEN 300
XN 291 IF A=0 THEN OP1$="england":OP2$="i
   reland":OP3$="DENMARK":OP4$="sweden":O
   P5$="AUSTRIA"
AN 292 IF A=1 THEN OP1$="ireland":OP2$="D
   ENMARK":OP3$="sweden":OP4$="AUSTRIA":O
   P5$="england"
WU 293 IF A=2 THEN OP1$="DENMARK":OP2$="s
   weden":OP3$="AUSTRIA":OP4$="england":O
   P5$="ireland"
LY 294 IF A=3 THEN OP1$="sweden":OP2$="AU
   STRIA":OP3$="england":OP4$="ireland":O
   P5$="DENMARK"
XN 295 IF A=4 THEN OP1$="AUSTRIA":OP2$="e
   ngland":OP3$="ireland":OP4$="DENMARK":
   OP5$="sweden"
OC 298 GOTO 310
LG 300 IF C$<>"AUSTRIA" THEN 310
EZ 301 IF A=0 THEN OP1$="england":OP2$="i
   reland":OP3$="DENMARK":OP4$="sweden":O
   P5$="FRANCE"
YJ 302 IF A=1 THEN OP1$="ireland":OP2$="D
   ENMARK":OP3$="sweden":OP4$="FRANCE":OP
   5$="england"
CJ 303 IF A=2 THEN OP1$="DENMARK":OP2$="s
   weden":OP3$="FRANCE":OP4$="england":OP
   5$="ireland"
QG 304 IF A=3 THEN OP1$="sweden":OP2$="FR
   ANCE":OP3$="england":OP4$="ireland":OP
   5$="DENMARK"
NX 305 IF A=4 THEN OP1$="FRANCE":OP2$="en
   gland":OP3$="ireland":OP4$="DENMARK":O
   P5$="sweden"
UZ 310 GOSUB 8000:? #6;"K"
PY 320 POSITION 5,2:? #6;"GROUP 1":POSITI
   ON 2,5:? #6;" ▐K";C$;"▐K":POSITION 5,7
   :? #6;OP1$:POSITION 5,9:? #6;OP2$
MR 325 POSITION 5,3:? #6;"_________":POKE 7
   64,255:POSITION 2,11:? #6;R1$
WZ 330 ? #6:? #6:? #6;"    press a key"
JC 335 IF PEEK(764)=255 THEN 335
AI 340 ? #6;"K":POSITION 5,2:? #6;"GROUP
   2":POSITION 3,5:? #6;"  ";OP3$;"
   ":POSITION 5,7:? #6;OP4$;" ":POSITION
   5,9
BF 345 ? #6;OP5$;"  ":POSITION 2,11:? #6;
   R2$;"      "
TX 350 ? #6:? #6:? #6;"    press a key":P
   OKE 764,255
LK 355 IF PEEK(764)=255 THEN 355
KO 360 GOTO 3000
BG 365 POKE 54286,192:GOSUB 9000
TW 370 POSITION 0,0:? #6;"TIME   HRS   TEMP
   "
TJ 380 IF C$="england" THEN POKE 706,12
RM 390 IF C$="ireland" OR C$="sweden" THE
   N POKE 706,196
AX 400 IF C$="DENMARK" OR C$="FRANCE" OR
   C$="AUSTRIA" THEN POKE 706,52
XQ 420 POKE 19,0:GOSUB 2000:POKE 752,1:PO
   KE 764,255
EP 430 ? "K↓↓       WILL YOU FLOAT OR LEDG
   ER":CLOSE #1:OPEN #1,4,0,"K:":GET #1,A
   :IF A<>70 AND A<>76 THEN ? "W":GOTO 43
   0
PF 435 T$=CHR$(A)
KX 440 ? "K↓↓      BLOODWORM MAGGOT OR CAS
   TER":CLOSE #1:OPEN #1,4,0,"K:"
JR 450 GET #1,A:IF A<>66 AND A<>67 AND A<
   >77 THEN ? "W":GOTO 450
UD 455 BA$=CHR$(A)
QR 460 ? "K↓↓      WILL YOU GROUNDBAIT  Y/
   N ":CLOSE #1:OPEN #1,4,0,"K:"
BM 470 GET #1,A:IF A<>78 AND A<>89 THEN ?
    "W":GOTO 470
MV 475 G$=CHR$(A):IF G$="Y" THEN GOSUB 86
   00
LV 480 ? "K↓↓            POSITION ";:IF T$
   ="F" THEN ? "FLOAT":GOTO 500
GD 490 ? "LEDGER"
FM 500 S=STICK(0):X=X+(S=7)+(S=6)+(S=5)-(
   S=11)-(S=10)-(S=9):Y=Y+(S=13)+(S=9)+(S
   =5)-(S=6)-(S=10)-(S=14)
VQ 510 IF X<48 THEN X=48
CY 515 IF S=15 AND X>85 AND X<115 AND Y>1
   25 THEN X=120
UM 520 IF X>200 THEN X=200
AV 525 IF S=7 AND X>85 AND X<115 AND Y>12
   5 THEN X=85
UC 530 IF Y<73 THEN Y=73
JH 535 IF S=11 AND X>85 AND X<115 AND Y>1
   25 THEN X=115
ZR 540 IF Y>145 THEN A=USR(1536,PM+40,PM+
   1791+Y,8):Y=145
TU 545 IF S=13 AND X>85 AND X<115 AND Y>1
   25 THEN A=USR(1536,PM+40,PM+1791+Y,8):
   Y=125
LK 550 A=USR(1536,PM,PM+1791+Y,8)
OG 560 POKE 53251,X
WM 570 IF STRIG(0)=1 THEN 500
KE 571 A=USR(1536,PM+40,PM+1791+Y,8):GOSU
   B 8500
PU 575 IF T$="F" THEN 700
LK 580 FOR I=10 TO 5 STEP -0.25:SOUND 0,I
   ,8,I:IF X<100 THEN A=USR(1536,PM+112,P
   M+1791+123,20):NEXT I:GOTO 585
MD 582 A=USR(1536,PM+132,PM+1791+123,20):
   NEXT I
PT 585 SOUND 0,0,0,0:FOR D=1 TO 100:NEXT
   D:FOR I=0 TO 3:SOUND 0,80,8,10:NEXT I:
   SOUND 0,0,0,0
NS 586 A=USR(1536,PM+152,PM+1792+123,20):
   POKE 53249,100:POKE 53251,X
TC 590 A=USR(1536,PM+32,PM+1791+Y,8)
IZ 600 FOR D=1 TO 20:NEXT D
TI 610 A=USR(1536,PM+24,PM+1791+Y,8)
JD 620 FOR D=1 TO 20:NEXT D
UH 630 A=USR(1536,PM+16,PM+1791+Y,8)
JH 640 FOR D=1 TO 20:NEXT D
TO 650 A=USR(1536,PM+24,PM+1791+Y,8)
JL 660 FOR D=1 TO 20:NEXT D
SZ 670 A=USR(1536,PM+32,PM+1791+Y,8)
JP 680 FOR D=1 TO 20:NEXT D
VH 690 A=USR(1536,PM+40,PM+1791+Y,8):GOTO
    750
UC 700 A=USR(1536,PM+40,PM+1791+Y,8):FOR
   I=10 TO 5 STEP -0.25:SOUND 0,I,8,I
FE 702 IF X<100 THEN A=USR(1536,PM+112,PM
   +1791+123,20):NEXT I:SOUND 0,0,0,0:GOT
   O 706
TS 704 A=USR(1536,PM+132,PM+1791+123,20):
   NEXT I:SOUND 0,0,0,0
NL 706 A=USR(1536,PM+152,PM+1791+123,21):
   POKE 53249,100:POKE 53251,X
EO 710 FOR D=1 TO 100:NEXT D:FOR I=0 TO 3
   :SOUND 0,80,8,10:NEXT I:SOUND 0,0,0,0
IE 720 POKE 707,28:A=USR(1536,PM+48,PM+17
   92+Y,4)
GR 750 POKE 53249,100
SG 770 ? "K":POKE 764,255:IF F=0 THEN POK
   E 19,0:POKE 20,0
DX 780 SB=8:IF W1$<>"HAS THUNDER STORMS"
   THEN LI=-1:GOTO 790
CT 785 LI=2
TF 790 IF (XG>X-5 AND XG<X+5) AND (YG>Y-5
    AND YG<Y+5) THEN SB=SB+5
FM 795 IF (TEM>60 AND BA$="C") OR (TEM>50
    AND TEM<65 AND BA$="M") OR (TEM<55 AN
   D BA$="B") THEN SB=SB+5
EC 800 GOSUB 2000:A=INT(RND(0)*100):IF A>
   =100-SB AND A<100 THEN 900
HO 820 IF A>LI THEN 850
UK 825 SETCOLOR 4,2,2:SETCOLOR 3,C3,B3:SE
   TCOLOR 0,C0,B0:SETCOLOR 2,8,4:SETCOLOR
    1,0,6:FOR D=1 TO INT(RND(0)*400)+30:N
   EXT D
ZO 830 SETCOLOR 4,0,15:SETCOLOR 3,0,15:SE
   TCOLOR 1,0,15:SETCOLOR 2,0,15:SETCOLOR
    0,0,15:FOR D=1 TO 5:NEXT D
UM 835 SETCOLOR 4,2,2:SETCOLOR 3,C3,B3:SE
   TCOLOR 0,C0,B0:SETCOLOR 2,8,4:SETCOLOR
    1,0,6:FOR D=1 TO INT(RND(0)*400)+30:N
```

CATCH DAY

```
   EXT D
FG 840 FOR D=INT(RND(0)*9)+7 TO 0 STEP -0
   .05:SOUND 0,250,8,D:SOUND 1,250,6,D:SO
   UND 2,250,4,D:NEXT D
ZZ 850 IF W1$="IS RAINY" OR W1$="HAS THUN
   DER STORMS" THEN SOUND 3,20,8,2
ZH 860 IF STRIG(0)=1 THEN 800
GV 870 ? "K↓↓              MISSED":FOR D=1 TO
    200:NEXT D:? "K":GOTO 800
JV 900 POKE 707,132:SOUND 0,100,10,8:FOR
   D=1 TO 20:IF STRIG(0)=1 THEN NEXT D:SO
   UND 0,0,0,0:POKE 707,28:GOTO 800
AV 910 SOUND 0,0,0,0:? "K↓↓
   FISH HOOKED":DIR=198:GOSUB 1000
AH 920 S=STICK(0):X=X+(S=7)-(S=11):Y=Y+(S
   =13)
NT 925 IF X<50 THEN X=50
PS 930 IF X>198 THEN X=198
UV 935 IF Y<73 THEN Y=73
GL 940 IF Y>145 THEN Y=145
YC 945 A=USR(1536,PM+DIR,PM+1791+Y,6):POK
   E 53251,X:GOSUB 1800
YK 950 IF Y>143 AND (X>95 AND X<105) THEN
    1900
PR 960 IF S=11 THEN DIR=204
PV 970 IF S=7 THEN DIR=210
WI 976 IF R1$<>"r avon eng" AND R1$<>"r t
   hames eng" AND R1$<>"r trent eng" THEN
    1020
BM 980 IF S=13 THEN DIR=198
DC 990 Y=Y-0.2:X=X-0.2:IF S=15 THEN DIR=2
   16
QT 995 GOTO 920
QZ 999 REM ***-FIND-FISH-SPECIES-***
EM 1000 IF R1$<>"r thames" AND R1$<>"r av
   on" AND R1$<>"r trent" THEN 1020
TV 1010 RESTORE 1100:FOR I=1 TO INT(RND(0
   )*6)+1:READ F$:NEXT I:RETURN
EF 1020 IF R1$<>"r shannon ire" AND R1$<>
   "r bann ire" AND R1$<>"r clare ire" TH
   EN 1040
UQ 1030 RESTORE 1200:FOR I=1 TO INT(RND(0
   )*6)+1:READ F$:NEXT I:RETURN
KY 1040 IF R1$<>"r faxe swd" AND R1$<>"r
   kalix swd" AND R1$<>"r klar swd" THEN
   1060
LB 1050 RESTORE 1300:FOR I=0 TO INT(RND(0
   )*6):READ F$:NEXT I:RETURN
MY 1060 IF R1$<>"R MUR AUS" AND R1$<>"R S
   ALZACH AUS" AND R1$<>"R ENNS AUS" THEN
    1080
IS 1070 RESTORE 1400:FOR I=0 TO INT(RND(0
   )*4):READ F$:NEXT I:RETURN
CP 1080 IF R1$<>"R VIENNE FRA" AND R1$<>"
   R LOIR FRA" AND R1$<>"R AUBE FRA" THEN
    1090
LT 1085 RESTORE 1500:FOR I=0 TO INT(RND(0
   )*5):READ F$:NEXT I:RETURN
NG 1090 RESTORE 1600:FOR I=0 TO INT(RND(0
   )*6):READ F$:NEXT I:RETURN
MH 1100 DATA BREAM
RA 1110 DATA PERCH
OG 1120 DATA DACE
OF 1130 DATA ROACH
CC 1140 DATA BARBEL
YU 1150 DATA CHUB
MJ 1200 DATA BREAM
OB 1210 DATA ROACH
QK 1220 DATA TENCH
MS 1230 DATA BREAM
MV 1240 DATA BREAM
DU 1250 DATA RUDD
HN 1300 DATA IDE
OD 1310 DATA ROACH
HT 1320 DATA IDE
MU 1330 DATA BREAM
OM 1340 DATA ROACH
NA 1350 DATA BREAM
YL 1400 DATA CHUB
MQ 1410 DATA BREAM
RJ 1420 DATA PERCH
YU 1430 DATA CHUB
BI 1500 DATA CARP
MS 1510 DATA BREAM
BO 1520 DATA CARP
RO 1530 DATA PERCH
YZ 1540 DATA CHUB
MR 1600 DATA BREAM
OJ 1610 DATA ROACH
MX 1620 DATA BREAM
OP 1630 DATA ROACH
OW 1640 DATA DACE
RW 1650 DATA PERCH
RG 1799 REM ***-FIND-COLOUR-OF-FISH-***
QF 1800 IF F$="BARBEL" OR F$="BREAM" OR F
   $="CARP" THEN POKE 707,235
GX 1810 IF F$="CHUB" OR F$="ROACH" OR F$=
   "DACE" OR F$="IDE" OR F$="RUDD" THEN P
   OKE 707,13
YS 1820 IF F$="TENCH" OR F$="PERCH" THEN
   POKE 707,200
AY 1830 RETURN
WO 1899 REM ***-PRINT-NAME-OF-FISH-***
JI 1900 ? "K↓↓              FISH IS A ";F$:A
   =USR(1536,PM+40,PM+1791+Y,8):POKE 707,
   0
YU 1905 GOSUB 2100
ME 1910 GOSUB 2000:IF PEEK(53279)=3 THEN
   430
TV 1920 IF PEEK(53279)=5 THEN 440
WZ 1930 IF PEEK(53279)=6 THEN 460
KU 1940 IF STRIG(0)=0 THEN 480
MZ 1950 FOR D=1 TO 10:NEXT D:GOTO 1910
ZU 1999 REM ***-UP-DATE-TIMER-***
ZE 2000 T=INT(RND(0)*256):IF T=100 THEN T
   EM=TEM-1
TD 2005 IF T=200 THEN TEM=TEM+1
YT 2010 A=PEEK(19):A=INT(A/15):POSITION 5
   ,0:? #6;A:POSITION 16,0:? #6;TEM;"F"
RA 2020 IF A>4 THEN ? "K↓↓  YOUR WEIGHT I
   S ";LB;"LB FOR ";F;" FISH":SOUND 0,15,
   6,6:FOR D=1 TO 1000:NEXT D:GOTO 4000
AJ 2030 RETURN
EV 2099 REM ***-FIND-WEIGHT-OF-FISH-***
MK 2100 IF F$="BREAM" OR F$="CHUB" OR F$=
   "BARBEL" OR F$="PERCH" THEN LB=LB+INT(
   RND(0)*3)+1:F=F+1:RETURN
FE 2105 IF F$="CARP" OR F$="IDE" OR T$="T
   ENCH" THEN LB=LB+INT(RND(0)*6)+1:F=F+1
   :RETURN
EQ 2110 LB=LB+1:F=F+1:RETURN
HO 2999 REM ***-CHOOSE-MATCH-***
KA 3000 ? #6;"K     choose match"
PR 3005 ? #6;"      ______ ______"
TD 3010 ? #6:? #6;"1        summer
     championship"
WT 3020 ? #6:? #6;"2        autumn
     championship"
VC 3030 ? #6:? #6;"3        winter
     championship"
OX 3040 ? #6:? #6;"4        spring
     championship"
DC 3045 ? #6:? #6:? #6;"PRESS NO. OF CHOI
   CE"
CS 3050 POKE 764,255:CLOSE #1:OPEN #1,4,0
   ,"K:"
HS 3055 GET #1,A:A=A-48:IF A<1 OR A>4 THE
   N 3055
XU 3060 IF A=1 THEN DT$="JUN 21ST"
MK 3062 IF A=2 THEN DT$="SEPT 21ST"
UP 3064 IF A=3 THEN DT$="DEC 21ST"
OA 3066 IF A=4 THEN DT$="MAR 21ST"
GF 3070 ? #6;"KDATE : ";DT$
GN 3080 ? #6:? #6;"WEATHER CONDITIONS"
DA 3090 IF DT$="JUN 21ST" OR DT$="SEPT 21
   ST" THEN RESTORE 3200:FOR I=0 TO INT(R
   ND(0)*8):READ W1$:NEXT I
MI 3095 IF DT$="JUN 21ST" OR DT$="SEPT 21
   ST" THEN RESTORE 3200:FOR I=0 TO INT(R
   ND(0)*8):READ W2$:NEXT I
VH 3100 IF DT$="DEC 21ST" OR DT$="MAR 21S
   T" THEN RESTORE 3230:FOR I=0 TO INT(RN
   D(0)*7):READ W1$:NEXT I
ZO 3105 IF DT$="DEC 21ST" OR DT$="MAR 21S
   T" THEN RESTORE 3230:FOR I=0 TO INT(RN
   D(0)*7):READ W2$:NEXT I
HM 3110 ? #6:? #6;R1$;" AREA":IF W1$<>"HA
   S THUNDER STORMS" THEN ? #6;"        ";
   W1$:GOTO 3120
XA 3115 ? #6;"  ";W1$
PW 3120 ? #6:? #6;R2$;" AREA":IF W2$<>"HA
   S THUNDER STORMS" THEN ? #6;"        ";
   W2$:GOTO 3130
XU 3125 ? #6;"  ";W2$
AD 3130 IF W1$="IS SUNNY" THEN TEM=70:C0=
   8:B0=8:C3=11:B3=9
QZ 3140 IF W1$="IS RAINY" OR W1$="IS CLOU
   DY" OR W1$="HAS THUNDER STORMS" THEN T
   EM=INT(RND(0)*20)+50:C0=0:B0=15:C3=11:
   B3=7
AO 3150 IF W1$="IS FOGGY" THEN TEM=INT(RN
   D(0)*20)+50:C0=0:B0=6:C3=0:B3=8
YR 3160 IF W1$="IS WINDY" THEN TEM=INT(RN
   D(0)*20)+30:C0=0:B0=15:C3=11:B3=7
EJ 3170 IF W1$="IS ICY" OR W1$="HAS SNOW"
    THEN TEM=INT(RND(0)*20)+30:C0=0:B0=15
   :C3=0:B3=10
QH 3200 DATA IS SUNNY
OK 3210 DATA IS SUNNY
QN 3220 DATA IS SUNNY
BM 3230 DATA IS RAINY
XC 3240 DATA HAS THUNDER STORMS
GT 3250 DATA IS CLOUDY
FR 3260 DATA IS WINDY
XT 3270 DATA IS FOGGY
ZP 3280 DATA IS ICY
ET 3290 DATA HAS SNOW
RH 3300 ? #6:? #6:? #6:? #6;"     press a
   key":POKE 764,255
BB 3305 IF PEEK(764)=255 THEN 3305
TG 3310 GOTO 365
XP 3999 REM ***-RESULTS-***
YB 4000 ? #6;"K":POKE 1634,187:FOR I=0 TO
    3:SOUND I,0,0,0:POKE 53248+I,0:NEXT I
ON 4005 SETCOLOR 2,8,4:SETCOLOR 0,2,4:SET
   COLOR 1,0,15:SETCOLOR 3,12,2:SETCOLOR
   4,11,11
NU 4010 IF FL1$=C$ THEN 4400
HF 4015 LB1=INT(RND(0)*100)+50:LB2=INT(RN
   D(0)*100)+50:IF LB=LB1 OR LB=LB2 OR LB
   1=LB2 THEN 4015
YP 4020 ? #6;"   GROUP 1 RESULTS"
DV 4030 ? #6;"   _______________"
FY 4040 ? #6:? #6;" ";C$;" ";LB;"LB ";INT
   (RND(0)*15)+1;"OZ"
AV 4050 ? #6:? #6;" ";OP1$;" ";LB1;"LB ";
   INT(RND(0)*15)+1;"OZ"
CZ 4060 ? #6:? #6;" ";OP2$;" ";LB2;"LB ";
   INT(RND(0)*15)+1;"OZ"
SW 4070 IF PEEK(764)=255 THEN GOTO 4070
KR 4075 IF LB>HW THEN GOSUB 7000
MX 4080 LB3=INT(RND(0)*100)+50:LB4=INT(RN
   D(0)*100)+50:LB5=INT(RND(0)*100)+50:PO
   KE 764,255
LA 4085 IF LB3=LB4 OR LB5=LB4 OR LB3=LB5
   THEN 4080
AE 4090 ? #6;"K   GROUP 2 RESULTS"
FH 4095 ? #6;"    _______________"
EK 4100 ? #6:? #6;" ";OP3$;" ";LB3;"LB ";
   INT(RND(0)*15)+1;"OZ"
GO 4110 ? #6:? #6;" ";OP4$;" ";LB4;"LB ";
   INT(RND(0)*15)+1;"OZ"
IS 4120 ? #6:? #6;" ";OP5$;" ";LB5;"LB ";
   INT(RND(0)*15)+1;"OZ"
WW 4130 IF PEEK(764)=255 THEN 4130
BS 4140 ? #6;"K      FINAL"
DF 4150 IF LB>LB1 AND LB>LB2 THEN FL1$=C$
PT 4160 IF LB1>LB AND LB1>LB2 THEN FL1$=O
   P1$
RR 4170 IF LB2>LB AND LB2>LB1 THEN FL1$=O
   P2$
OR 4180 IF LB3>LB4 AND LB3>LB5 THEN FL2$=
   OP3$
RC 4190 IF LB4>LB3 AND LB4>LB5 THEN FL2$=
   OP4$
RZ 4200 IF LB5>LB3 AND LB5>LB4 THEN FL2$=
   OP5$
XV 4210 ? #6:? #6;FL1$;" VS ";FL2$
IS 4220 GOSUB 8000:? #6:? #6:? #6;R1$
AE 4230 IF FL1$<>C$ THEN ? #6:? #6:? #6;"
   SORRY  YOU HAVE NOT      QUALIFIED":GO
   TO 4250
RY 4240 GOTO 4340
WN 4250 ? #6:? #6;"    PRESS KEY FOR
      RESULTS":POKE 764,255
BW 4260 IF PEEK(764)=255 THEN 4260
KN 4270 ? #6;"K     FINAL RESULTS"
QY 4280 ? #6;"      _____________"
VV 4290 FLB=INT(RND(0)*100)+50:FLB1=INT(R
   ND(0)*100)+50
PL 4300 ? #6:? #6;" ";FL1$;" ";FLB;"LB ";
   INT(RND(0)*15)+1;"OZ"
GK 4310 ? #6:? #6;" ";FL2$;" ";FLB1;"LB "
   ;INT(RND(0)*15)+1;"OZ"
HD 4320 IF FLB>FLB1 THEN ? #6:? #6:? #6;F
   L1$;" are the":? #6:? #6;"       CHAMPI
   ONS"
AK 4330 IF FLB1>FLB THEN ? #6:? #6:? #6;"
    ";FL2$;" ARE THE":? #6:? #6;"       c
   hampions"
GM 4340 POKE 764,255
UV 4350 ? #6:? #6;"press a key to start
     next match"
VO 4360 IF PEEK(764)=255 THEN GOTO 4360
OM 4370 IF FL1$=C$ THEN 100
TJ 4380 GOTO 90
SO 4400 ? #6;"K      final results"
GU 4410 ? #6;"       _____________"
TT 4415 LB1=INT(RND(0)*100)+50:IF LB=LB1
   THEN 4415
CA 4420 ? #6:? #6;" ";FL1$;" ";LB;"LB ";I
   NT(RND(0)*15)+1;"OZ"
RP 4430 ? #6:? #6;" ";FL2$;" ";LB1;"LB ";
   INT(RND(0)*15)+1;"OZ"
ZM 4440 IF LB>LB1 THEN ? #6;" ";FL1$;" AR
   E THE ":? #6;"        champions"
WW 4450 IF LB1>LB THEN ? #6;" ";FL2$;" ar
   e the ":? #6;"        CHAMPIONS"
SJ 4460 ? #6:? #6:? #6;"    press a key t
   o ":? #6;"    continue":POKE 764,255
FN 4470 IF PEEK(764)=255 THEN 4470
KZ 4475 IF LB>HW THEN GOSUB 7000
MV 4480 IF LB>LB1 THEN GOSUB 10000
TO 4490 GOTO 90
UN 6999 REM ***-ENTER-NAME-***
UA 7000 N$="":? #6;"K":? #6;"    A B C D E
    F G":? #6:? #6:? #6;"    H I J K L M N
   ":? #6:? #6:? #6;"    O P Q R S T U"
HE 7010 POKE 756,224:? #6:? #6:? #6;"    V
    W X Y Z ( )":? #6:? #6:? #6;"    , .
```

CATCH DAY

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   ' ' E ]":POSITION 7,19:? #6;"-----"
VM 7020 HW=LB:X=3:Y=1:FOR I=1 TO 5
PS 7030 POSITION X,Y-1:? #6;" ":POSITION
   X,Y+1:? #6;" ":S=STICK(0):X=X+(S=7)*2-
   (S=11)*2:Y=Y+(S=13)*3-(S=14)*3
BB 7031 IF X<3 THEN X=3
MQ 7032 IF X>15 THEN X=15
AE 7034 IF Y<1 THEN Y=1
LS 7036 IF Y>13 THEN Y=13
HR 7040 POSITION X,Y-1:? #6;"-":POSITION
   X,Y+1:? #6;"-"
MH 7050 IF STRIG(0)=0 THEN 7070
OF 7060 IF STICK(0)=15 THEN FOR D=1 TO 10
   :NEXT D:GOTO 7050
LZ 7065 FOR D=1 TO 10:NEXT D:GOTO 7030
KA 7070 LOCATE X,Y,A:N$(I,I)=CHR$(A)
WR 7080 POSITION 7,18:? #6;N$:FOR D=1 TO
   10:NEXT D:NEXT I
KD 7090 FOR D=1 TO 20:NEXT D:? #6;"Khighe
   st weight today"
SF 7100 ? #6:? #6:? #6;"  ";HW;"LB  BY  "
   ;N$
LF 7110 ? #6:? #6:? #6:? #6;"    press a
   key to          continue":POKE 764,255
YY 7120 IF PEEK(764)=255 THEN 7120
SN 7130 ? #6;"K":POKE 756,CBAS:RETURN
GX 7999 REM ***-FIND-RIVER-***
HK 8000 RESTORE 8100:FOR I=1 TO INT(RND(0
   )*9)+1:READ R1$:NEXT I
IN 8010 RESTORE 8200:FOR I=1 TO INT(RND(0
   )*8)+1:READ R2$:NEXT I
AM 8020 RETURN
NP 8100 DATA R MUR AUS
BI 8110 DATA r faxe swd
LX 8120 DATA R VIENNE FRA
MY 8130 DATA r clare ire
KX 8140 DATA KEIL CANAL DEN
AR 8150 DATA r avon eng
GS 8160 DATA R SALZACH AUS
JB 8170 DATA r kalix swd
BR 8180 DATA R LOIR FRA
BY 8200 DATA r shannon ire
RW 8210 DATA R LAGEN DEN
ND 8220 DATA r trent eng
NF 8230 DATA R ENNS AUS
EX 8240 DATA r klar swd
NC 8250 DATA R AUBE FRA
PY 8260 DATA r bann ire
KN 8270 DATA r thames eng
LD 8499 REM ***-THROW-GROUNDBAIT-***
XD 8500 POKE 53251,100:POKE 53249,0:A=USR
   (1536,PM+52,PM+1792+123,20):FOR D=1 TO
    10:NEXT D
WI 8510 A=USR(1536,PM+72,PM+1791+123,20):
   FOR D=1 TO 10:NEXT D
XZ 8520 A=USR(1536,PM+92,PM+1791+123,20):
   FOR D=1 TO 10:NEXT D
AZ 8530 RETURN
DV 8600 POKE 707,24:? "K++         POSITIO
   N YOUR THROW ":IF XG=0 OR YG=0 THEN A=
   USR(1536,PM+40,PM+1792+YG,8)
PY 8605 X1=100:XG=50:YG=74:A=USR(1536,PM,
   PM+1792+YR,8)
PI 8610 S=STICK(0):XG=XG+(S=7)+(S=5)+(S=6
   )-(S=11)-(S=10)-(S=9):YG=YG+(S=13)+(S=
   5)+(S=9)-(S=14)-(S=6)-(S=10)
LJ 8612 IF XG<48 THEN XG=48
CY 8615 IF S=7 AND XG>85 AND XG<115 AND Y
   G>125 THEN XG=85
UD 8620 IF XG>200 THEN XG=200
GC 8625 IF S=11 AND XG>85 AND XG<115 AND
   YG>125 THEN XG=115
JI 8630 IF YG<73 THEN YG=73
LF 8635 IF S=13 AND XG>85 AND XG<115 AND
   YG>125 THEN YG=125
ZZ 8640 IF YG>140 THEN YG=140
YH 8650 A=USR(1536,PM,PM+1791+YG,8):POKE
   53251,XG
OI 8660 IF STRIG(0)=1 THEN 8610
GU 8670 POKE 53251,100:A=USR(1536,PM+40,P
   M+1791+YG,8):? "K":IF XG<100 THEN AD=(
   100-XG)/(140-YG):GOTO 8676
TQ 8672 IF XG>100 THEN AD=(XG-100)/(140-Y
   G):GOTO 8676
RN 8674 AD=0
GZ 8676 FOR I=140 TO YG STEP -1:SOUND 0,I
   -50,10,8
ZE 8680 IF XG=100 THEN A=USR(1536,PM+172,
   PM+1791+I,9):NEXT I:GOTO 8710
OD 8690 IF XG<100 THEN A=USR(1536,PM+172,
   PM+1791+I,9):POKE 53251,X1:X1=X1-AD:NE
   XT I:GOTO 8710
ZF 8700 A=USR(1536,PM+172,PM+1791+I,9):PO
   KE 53251,X1:X1=X1+AD:NEXT I
DF 8710 SOUND 0,20,8,6:A=USR(1536,PM+181,
   PM+1791+YG,8):FOR D=1 TO 20:NEXT D:A=U
   SR(1536,PM+189,PM+1791+YG,8):SOUND 0,0
   ,0,0
ZS 8720 FOR D=1 TO 20:NEXT D:A=USR(1536,P
   M+40,PM+1791+YG,8):POKE 707,0:FOR D=1
   TO 100:NEXT D:RETURN
NI 8999 REM ***-SET-UP-MAIN-SCREEN-***
ZX 9000 POKE 559,0:SETCOLOR 3,C3,B3:SETCO
   LOR 2,0,4:SETCOLOR 4,2,2:SETCOLOR 1,0,
   10:SETCOLOR 0,C0,B0:POKE 1634,PEEK(712
   )
EZ 9005 POSITION 0,3:? #6;"■;;;;;;;;;;;;;:
   ;;;;;;=/":POSITION 0,4:? #6;"■;;;;;;;;;;:
   ;;;;;;;;;=/":REM 1ST CHAR.INV'CNTRL'B'
TK 9010 POSITION 0,5:? #6;"'''''''''''''''
   '''''''!":POSITION 0,6:? #6;"''''''''''''''
   '''''''''''!"
ZY 9015 POSITION 0,7:? #6;"'''''''''''''''
   '''''''!":POSITION 0,8:? #6;"''''''''''''''
   '''''''''''!"
YB 9020 POSITION 0,9:? #6;"'''''''''''''''
   '''''''!":POSITION 0,10:? #6;"'''''''''''''
   '''''''''''''!"
FJ 9025 POSITION 0,11:? #6;"''''''''''''''
   ''''''''!":POSITION 0,12:? #6;"''''''''''''
   ''''''''''''''!"
KS 9030 POSITION 0,13:? #6;"''''''''''''''
   ''''''''!":POSITION 0,14:? #6;"''''''''''''
   ''''''''''''''!"
YM 9035 POSITION 0,15:? #6;"■;;;;;;;;;;;;:
   ;;;;;;=/":REM 1ST CHARACTER IS INVERSE
   'CONTROL'B'
AP 9040 POSITION 0,16:? #6;"■;;;;;;;;;;;;:
   ;;;;;;=/"
CB 9045 POSITION 0,17:? #6;"■;;;;;;;;;;;;:
   ;;;;;;=/"
ON 9050 POSITION 0,18:? #6;"KKKKKKKKKKKKKK
   KKKKKKK":REM 'ESC'CONTROL'DELETE'
PR 9100 POSITION 5,19:? #6;"ATARI \]"
MB 9105 POSITION 0,1:? #6;",-&&&&'()*+,-&
   &&&'()":POSITION 0,2:? #6;"@[::::;<=>?
   @[::::;<="
DO 9110 POKE 53277,3:POKE 704,0:POKE 5324
   8,100:POKE 53251,100:POKE 707,0:POKE 6
   23,1:POKE 53250,97
OH 9120 POKE 53258,1:POKE 559,62:POKE 532
   49,100
AS 9130 RETURN
MP 9199 REM ***-SET-UP-P/M-GRAPHICS-***
UU 9200 P=PEEK(106)-12:PM=P*256:POKE 5427
   9,P
HJ 9210 RESTORE 9300:FOR I=0 TO 255:POKE
   PM+1024+I,0:NEXT I:FOR I=0 TO 17:READ
   A:POKE PM+1024+142+I,A:NEXT I
LG 9215 FOR I=0 TO 255:POKE PM+1280+I,0:N
   EXT I:FOR I=0 TO 19:READ A:POKE PM+128
   0+123+I,A:NEXT I
XV 9220 RESTORE 9310:FOR I=0 TO 255:POKE
   PM+1792+I,0:NEXT I:FOR I=0 TO 222:READ
    A:POKE PM+I,A:NEXT I
KK 9230 RESTORE 9320:FOR I=0 TO 255:POKE
   PM+1536+I,0:NEXT I:FOR I=0 TO 15:READ
   A:POKE PM+1536+140+I,A:NEXT I
GA 9240 RESTORE 9330:FOR I=0 TO 86:READ A
   :POKE 1536+I,A:NEXT I
BA 9250 RETURN
BR 9300 DATA 24,60,126,60,24,0,0,0,0,0,12
   6,0,0,0,102,102,102,231
TT 9305 DATA 1,1,1,1,2,2,2,2,4,4,4,4,8,8,
   8,8,16,16,16,16
YW 9310 DATA 0,16,16,56,56,16,16,0,0,0,0,
   16,0,0,0
PM 9311 DATA 0,0,24,102,129,102,24,0,0,0,
   0,24,102,24,0,0,0,0,0,0,24,0,0,0,0,0,0
   ,0,0,0,0,0,0,16,16,16,16
EN 9312 DATA 2,2,2,2,2,2,4,4,4,4,4,8,8,8,
   8,8,16,16,16,16,0,0,4,4,4,4,4,4,4,8,8,
   8,8,8,8,8,16,16,16,16,16,16
XX 9313 DATA 16,16,16,16,16,16,16,16,16,1
   6,16,16,16,16,16,16,16,16,0,0
SF 9314 DATA 128,128,128,128,128,64,64,64
   ,64,32,32,32,32,32,32,16,16,16,0,0,0,2
   ,2,2,4,4,4,4,4,8,8,8,8,8,16,16,16
IX 9315 DATA 16,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,24,60,60,60,60,24,0,0
   ,0
BS 9316 DATA 0,0,16,36,84,36,16,0,0,0,16,
   20,42,20,16,0
FV 9317 DATA 0,56,56,56,16,0,0,16,56,112,
   96,0,0,16,56,28,12,0,0,96,112,56,16,0
XK 9320 DATA 0,0,40,40,68,68,68,124,56,56
   ,56,56,56,56,40,40
RG 9330 DATA 104,201,3,208,81,104,133,225
   ,104,133,224,104,133,227,104,133,226,1
   04,133,229
RS 9340 DATA 104,133,228,169,0,133,230,13
   3,231,168,177,224,145,226,24,169,1,101
QU 9350 DATA 224,133,224,169,0,101,225,13
   3,225,24,169,1,101,226,133,226,169,0,1
   01,227,133,227,24
SG 9360 DATA 169,1,101,230,133,230,169,0,
   101,231,133,231,24,165,228,197,230,208
   ,206,165
NJ 9370 DATA 229,197,231,208,200,96
OB 9499 REM ***-SET-UP-DLI-***
OF 9500 DL=PEEK(560)+PEEK(561)*256:POKE D
   L+24,6+128:RESTORE 9520:FOR I=1630 TO
   1649:READ A:POKE I,A:NEXT I
JH 9510 POKE 512,94:POKE 513,6
IE 9520 DATA 72,138,72,169,198,141,10,212
   ,141,24,208,169,28,141,23,208,104,170,
   104,64
BA 9530 RETURN
MU 9600 DATA 170,85,170,255,255,255,255,2
   55
EY 9610 DATA 170,85,170,255,252,248,241,2
   49
WZ 9620 DATA 170,85,170,255,34,34,243,243
SB 9630 DATA 170,85,170,255,63,63,63,63
UD 9640 DATA 170,85,170,255,224,192,143,2
   07
DP 9650 DATA 170,85,170,255,2,2,207,207
KR 9660 DATA 170,85,170,255,28,28,14,14
SO 9670 DATA 170,85,170,255,31,15,71,103
ND 9680 DATA 255,255,255,255,255,255,255,
   255
GG 9690 DATA 248,254,254,248,129,131,255,
   255
UB 9700 DATA 243,115,115,243,243,243,255,
   255
ZM 9710 DATA 63,63,63,63,6,6,255,255
GV 9720 DATA 199,243,243,199,15,31,255,25
   5
MJ 9730 DATA 207,206,206,204,204,204,255,
   255
TK 9740 DATA 14,78,238,238,134,134,255,25
   5
CL 9750 DATA 115,71,15,15,67,99,255,255
UO 9760 DATA 13,13,13,13,13,13,25,49,176,
   176,176,176,176,176,152,140,255,255,25
   5,126,24,0,0,0
MJ 9770 DATA 0,60,126,102,102,126,60,0,0,
   28,28,28,28,28,28,0,0,126,126,30,120,1
   26,126,0,0,126,14,30,30,14,126,0
AV 9780 DATA 0,118,118,126,126,14,14,0,0,
   126,112,126,126,14,126,0,0,126,112,126
   ,126,118,126,0
BZ 9790 DATA 0,126,126,14,14,14,14,0,0,12
   6,118,126,126,118,126,0,0,126,126,118,
   126,14,126,0
LN 9800 DATA 0,24,60,118,126,126,118,0,0,
   124,118,124,118,118,124,0,0,60,118,112
   ,112,118,60,0
RG 9810 DATA 0,120,124,122,122,124,120,0,
   0,126,112,120,120,112,126,0,0,126,112,
   120,120,112,112,0
NJ 9820 DATA 0,62,115,112,119,118,62,0,0,
   118,118,126,126,118,118,0,0,126,60,60,
   60,60,126,0
JF 9830 DATA 0,31,14,14,110,126,60,0,0,11
   8,124,120,120,124,118,0,0,112,112,112,
   112,126,126,0
FN 9840 DATA 0,227,247,255,235,227,227,0,
   0,115,123,127,127,119,115,0,0,60,126,1
   18,118,126,60,0
QJ 9850 DATA 0,124,118,126,124,112,112,0,
   0,60,126,118,118,126,63,0,0,124,118,11
   8,126,124,118,0
GM 9860 DATA 0,62,112,124,62,14,124,0,0,1
   26,126,60,60,60,60,0,0,118,118,118,126
   ,126,126,0
LE 9870 DATA 0,118,118,118,126,60,24,0,0,
   227,227,235,255,247,227,0
WZ 9880 DATA 0,118,126,60,60,126,118,0,0,
   119,127,62,28,28,28,0,0,126,126,28,56,
   126,126,0
RO 9899 REM ***-TITLE-PAGE-***
RB 9900 SETCOLOR 0,8,4:SETCOLOR 1,10,12:S
   ETCOLOR 2,11,9:SETCOLOR 3,3,4:SETCOLOR
    4,11,9
GI 9905 POSITION 3,9:? #6;"robert davies"
BS 9910 POSITION 9,5:? #6;"by"
DO 9915 POSITION 5,1:? #6;"CATCH DAY"
OB 9920 POSITION 8,14:? #6;"1987"
JC 9925 POSITION 3,18:? #6;"please wait .
   ..."
BI 9930 RETURN
PO 9999 REM ***-CHAMPIONS-!!-***
TC 10000 ? #6;"K":POSITION 1,2:? #6;" ";F
   L1$;" ARE THE":? #6;"       champions"
OA 10010 MES$="........................C
   ONGRATULATIONS...................YOU.
   HAVE.WON.THE.WORLD.CHAMPION"
JT 10020 MES$(LEN(MES$)+1)="SHIP.........
   ................PRESS.START.TO.TRY.AGAIN
   .......................................":
SU 10030 FOR I=1 TO 140:POSITION 0,13:? #
   6;MES$(I,I+19);:IF PEEK(53279)=6 THEN
   RETURN
ZF 10040 SETCOLOR 0,0,I:FOR D=1 TO 4:NEXT
    D:NEXT I:GOTO 10030
YG 10050 REM ***-----THE-END-----***
```

PAGE MARSHAL

Are 8-bit owners being left out of the current vogue for desk top publishing or page layout programs? John S Davison takes a look at a new page layout program that may solve your problems

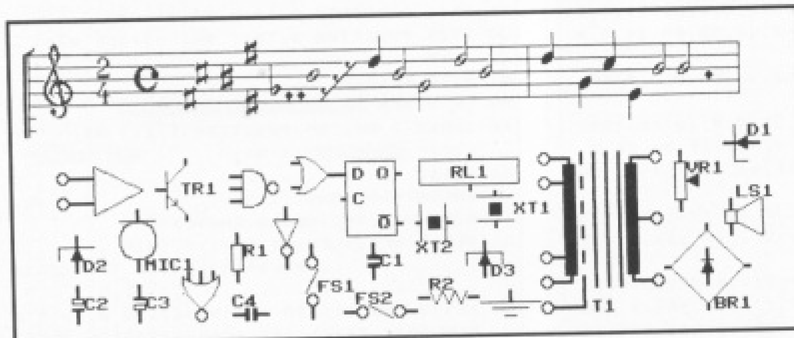
The arrival of a new application software product for the 8-bit machines is something of a special event these days, so I was quite excited to receive a review copy of Page Marshal from Valar Software. Its author, Richard Prangnell, describes it as a "text-with-graphics page processing (desktop publishing) system". That's quite a mouthful, but simply calling it a desktop publishing system would be slightly misleading.

It's designed as a tool to assist in the production of single page printed documents containing mixed text and graphics. The term 'graphics' here doesn't mean pictures produced with a paint program, video digitiser, or image scanner, but the sort of artwork needed to depict such things as flowcharts, graphs, business forms, organisation charts, statistical charts, printed circuit board layouts, electronic circuit schematics, and even musical scores. Specialised uses perhaps, but the basic software is flexible enough to be usable in more general circumstances.

The package consists of a 5.25" disk and an 18 page dot-matrix printed instruction manual. Side 1 of the disk contains the program code, while Side 2 holds the fonts and macro libraries. The programs were written in Turbo Basic and 6502 Assembler, but you don't need Turbo Basic to run them, as there's an appropriate run-time environment provided.

Two different versions of the main Page Marshal program are supplied, one for 800XL/65XE machines and the other for the 130XE. The 130XE's extra memory is used as a RAM-disk to hold fonts, making it run quicker when printing multi-font documents. There's also a utility program supplied, allowing manipulation of Page Marshal files in various ways, and for such specialised tasks as autonumbering components on electronic circuit diagrams, and selective editing of printed circuit board designs.

Obviously, you can't use Page Marshal unless you have all the right hardware. You need an 8-bit Atari with at least 64K memory, a disk drive, an Epson compatible printer driven via an Atari 850 interface (or equivalent), and a joystick.



Page Marshal contains special character sets for various specialist applications such as music and electronics

PAGE MARSHAL is available only from Valar Software, 115, Vale Road, Portslade, Sussex BN41 1GE. Price is around £30 but check current advertisements.

DANGER - CRAZY PRINTER!

The review got off to a dismal start. The program booted okay, but then I couldn't get the page editor to put anything on the screen. The program locked up several times, and after several re-boots I gave up trying to create my own document and loaded one of the sample documents provided instead. But then nothing would induce it to print out correctly - it just drove my printer crazy!

Just before disappearing under a deluge of paper uncontrollably cascading out of the printer, I received a flash of inspiration bright enough to frighten the cat! I flipped a DIP switch on my Star SG10 printer to put it into IBM mode. Result - perfect printout! I then discovered that the editing screen worked too. It seems you need to load a font before anything shows up on the editing screen - the program DOESN'T use the standard character set as a default. A font had been automatically loaded as part of the document load procedure, and from that point everything worked fine.

The point is that the manual says nothing about loading a font before editing and is totally inscrutable on the subject of printer DIP switch settings! Its basic content is fine, but its style is more that of a reference manual than a proper user guide. It really needs a 'Getting Started' section, to step users through the stages of producing their first document.

Page Marshal is based on a system of character elements (called micros), rather like the redefined character sets you find in most game programs. The characters are shaped so they can be placed together in blocks (known as macros) to make up the shape you want. The program is supplied with over 30 different pre-defined character sets (fonts), each containing 128 characters. These are provided in the usual 9 sector format, as produced by font editors such as Superfont and Fontedit. Valar say they'll be producing their own font editor for use with Page Marshal soon.

Many of these fonts offer the same character arrangement found on your Atari's keyboard, but in different character styles. For instance, there's one which looks like handwritten script, and another which has characters in outline form. Others are for special purposes, having non-standard character layouts which can be used specifically to create larger graphical macros. For example, there are fonts for building flowcharting, electronic component, and musical notation symbols.

Each micro is designed as an 8 x 8 bit cell, so prints out at about

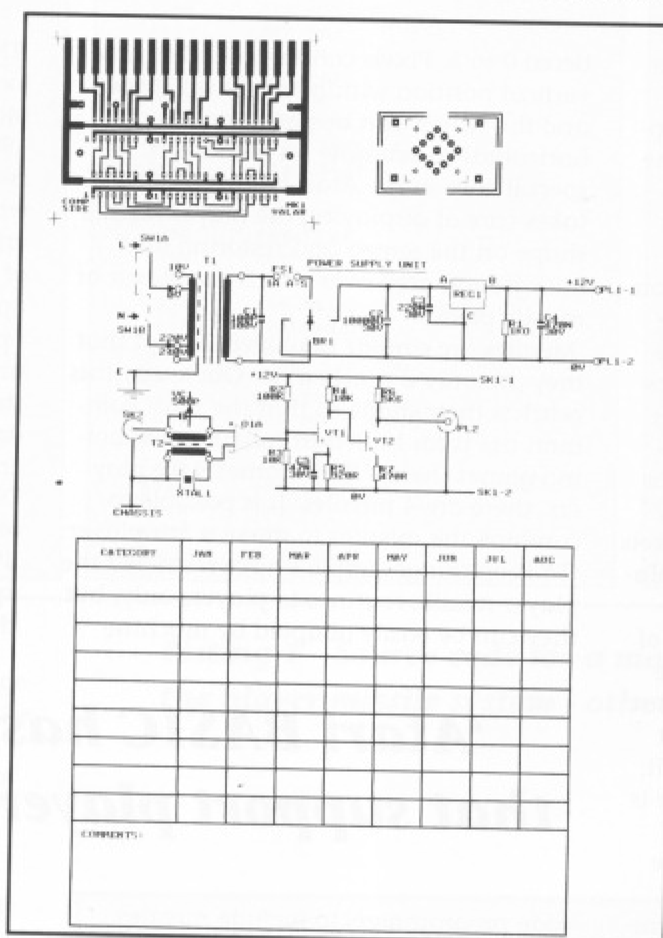
the same size as a normal printed character, and this is the program's main restriction. Most desktop publishing programs give you a choice of font sizes within each font style, enabling you to print big bold headlines across the top of your page, for example. Page Marshal doesn't, although there is a font provided from which you can construct larger size characters. However, the quality of the final result isn't as good as the smaller fonts.

BUILDING A PAGE

You build your page in an 80 x 80 character area using the program's edit facility. The whole page can't be viewed onscreen at once, but using a joystick it can be smoothly scrolled through a 40 x 20 screen window, allowing any section to be worked on. The joystick also controls a cursor which delineates an 8 x 8 pixel area, indicating where the next character will be positioned. With the program in 'micro mode' a character is placed on the page by selecting it from the keyboard and pressing the joystick's fire button. Moving the joystick with the button held down results in a trail of characters being drawn. Once on the page a character can be reselected later by 'grabbing' it with the cursor instead of rekeying it from the keyboard.

Unlike the traditional paint program, you build your page layout onscreen in character mode rather than graphics mode. This means that simple operations like drawing straight lines can't be done by 'rubber-banding' as used in programs like Atari Artist, but have to be built in sections from characters with the right shape. To make this easier Page Marshal has a special line drawing mode. This allows vertical and horizontal lines to be drawn by moving the joystick in the appropriate direction while holding down the fire button. When you change direction not only does the character shape automatically change from vertical to horizontal line (or vice-versa), but the correct corner characters get inserted too! This is great for drawing form layouts, but I found it worked too quickly, making accurate positioning of corners difficult.

Each page has a 48 x 80 character library area associated with it, and this is usually saved along with the page on disk. You can use this area as a scratchpad for building macros, which may be up to 32 x 16 characters in size. Once created, the program can be put into 'macro mode' allowing a macro to be picked up and positioned anywhere on your page. Using the utility program, the library area can be saved to disk without its associated page, from where it may be loaded into any other page's library area.



The sort of layouts you can expect from Page Marshal

Building macros from the special fonts is a bit like doing a jigsaw puzzle, and could become a mite tedious. Fortunately some of the work has been done for you as the package also contains several libraries holding sets of pre-defined macros. For example, there are libraries containing ready-built musical notation and electronic component symbol macros. You can incorporate these into your page design as they stand, or modify them for your own purposes.

Text may be quickly placed on the page by using the program's 'typer' mode. This allows you to type directly onto the screen from the keyboard, the cursor advancing one position for each character typed in the normal way. You can use multiple fonts within a page, changing fonts on every line if you wish. You're also supposed to be able to import text directly from an ATASCII file, although I couldn't make this work with print files produced by Atariwriter Plus.

Page Marshal always drives the printer in graphics mode, even when it's printing a page containing only text. This is how it manages to print out those fancy font styles, and is a little like GDOS on the ST in this respect. The only snag is that you must use an Epson compatible printer, as there are no alternative printer drivers supplied. Once the DIP switches were set correctly, my Star SG10 (Epson compatible) printer worked perfectly, producing really high quality results.

Only one page design can be printed in a printing run, so you can't link together multiple pages to print a multi-page document without user intervention. However, you can produce from 1 to 2000 copies of a given page and there's a feature allowing you to skip over a specified number of pages after printing each one to help cope with multi-page sets.

IN PRODUCTIVE USE

After that shaky start I found Page Marshal surprisingly pleasant and easy to use. It's driven via a menu to select major functions such as document, font, and text load; document save and print; disk directory print; printer setup; screen colours setup; and entry to the utilities program. Once within a function you find prompts, a further menu, or have to toggle between modes using OPTION/SELECT/START/HELP keys. It's not an intuitive user interface, but it's soon learned.

You do need to know the keyboard layout for whatever font you're using. Although it took a long time I printed out the supplied 'key finder' test document for every font on the disk. This not only shows every character in a font, but also where to find them on the keyboard. These charts are invaluable when building your own macros.

The printed results are impressive, and with care you can produce output pages which are very clear, clean, and professional looking. The more I use the program the more uses I can find for it, so over time it could become one of those indispensable programs like Broderbund's classic Print Shop package.

As with most programs of this type you can always think of additional features you wish the author had included. My personal wish-list would add good quality larger font sizes, a built-in font editor, the ability to import picture graphics from elsewhere, better multi-page document handling, and access to DOS facilities. I'm sure I'll discover others too, but don't let this obscure the fact that Page Marshal is already a very useful package. It's rather overpriced in its current state, but it does expand the scope of your 8-bit machine considerably and can be recommended to anyone needing its specialist printing capabilities. ●

Next issue we will take a look at NEWSTATION a 'desk top publishing' program that has been out for a while in the States, where it is widely supported, and which is finally being imported for 8 bit users in this country by Callisto Computers

MACHINE CODE LIBRARY

by Stephen Williamson

Part three introduces Player Missile Graphics with routines that you can use in your own Basic programs

The Player Missile system is used to plot and move sprites, but Atari BASIC has no commands that support player missile graphics. The machine code library routines this issue are designed to set up and control player missiles from a machine code program and also from within a BASIC program. Even if you do not have a working knowledge of the player missile system you should be able to use the routines in your own programs without much difficulty. All the machine code source code listings work with standard Atari assemblers such as MAC 65 or the Atari Assembler Editor cartridge.

A player is a grid or stripe on which pixels can be plotted. In the case of single resolution mode the stripe is 8 pixels wide by 256 pixels long and takes up 256 bytes of RAM. There is a double resolution mode (128 x 8) which takes up less memory but the pixels are much chunkier making it impossible to achieve fine graphic detail. Because of this, double resolution mode is seldom used by most applications. The player missile routines in this article are for single resolution players only.

There are 4 players, conventionally numbered 0 to 3. Pixels can be plotted at any vertical position within the player stripe and the stripes can be positioned at any horizontal co-ordinate on the screen. A special chip in the Atari known as ANTIC takes care of displaying the player missile shape on the screen and restoring any background area over which the player or missile passes.

Missiles are similar to players except that they are only 2 pixels wide. Obviously this restricts their shape so that the most common use is for bullets or missiles in shooting games (hence their name). Like players, there are 4 missiles. It is possible to combine the missiles to make a 5th player. To keep things simple I have restricted the player missile routines to players only, but they can be easily adapted by machine code programmers to include missiles.

'Atari BASIC has no commands that support player missile graphics'

INITIALISING THE SYSTEM

Listing 1 is the source code for a machine code routine to initialise the player missile system. The first thing that must be done when setting up the player missile routine is to reserve an area of memory 2K long that will contain the player missile stripes. The start of this area is known as PMBASE and, due to limitations of the Atari hardware, must be on a 2K boundary i.e. any RAM address that can be divided by the number 2048. I usually make PMBASE 36864, at the top end of RAM and below the area that I use for the screen memory, but you can allocate another area by changing the value in line 100.

The high byte of PMBASE is stored at location 54279 to tell ANTIC where the player missile stripes are (see lines 190-200). Address 559 (known as SDMCTL) switches on DMA (Direct Memory Access) which enables ANTIC to control the player/missile system as well as setting the size of the screen. Figure 1 is a list of the options available. Pick the combination of options that you want, add up the values and store at address 559. The routine stores a value of 62 in address 559 (standard screen, enable missiles, enable players, single line resolution and enable DMA). Although the routine does not use missiles it does no harm to enable them.

Priority selection controls which graphics appear 'in front' of others. The possible choices are listed in Figure 2. The priority is set to 1 (see line 1650) which, according to the table means that players 0 to 3 will appear in front of colours 0 to 3 and the background. Most games use a 4 or 5 colour graphics mode as this makes the use of priorities and collision detection easier to manage. The priority value is stored at address 623 (see lines 310,370). This takes the value from the register labelled PRIORITY. To change the priority alter the PRIORITY register at line 1650.

By storing zero in address 53278 the collision detection system used by player missile graphics is cleared (lines 330-340). Although the routine does not access collision detection, it is good practice to clear the registers when initialising the player missile system.

Lines 390 to 480 fill the player missile

OPTION	VALUE
No screen	0
Narrow screen	1
Standard screen	2
Wide screen	3
Enable missile DMA	4
Enable player DMA	8
One line resolution	12
Enable ANTIC DMA	32

Figure 1
SDMCTL VALUES STORED AT 559

```
10 ;MACHINE CODE LIBRARY
20 ;by Steve Williamson
30 ;for PAGE 6
40 ;________________________________
50 ;#3.1 SET UP PLAYER MISSILE SYSTEM
60 ;________________________________
70 ;
80        *=  36000
90        .OPT OBJ
0100 PMBASE = 36864
0110 HPOSP0 = 53248
0120 HPOSP1 = 53249
0130 HPOSP2 = 53250
0140 HPOSP3 = 53251
0150 ;
0160 ;---------------------
0170 ;Initialise registers
0180 ;---------------------
0190      LDA #PMBASE/256
0200      STA 54279
0210      CLC
0220      ADC #3
0230      STA 204
0240      STA 205
0250      LDA #0
0260      STA 203
0270 ;Set SDMCTL for normal playfield
0280 ;and single resolution players
0290      LDA #62
0300      STA 559
0310      LDA PRIORITY Set priority
0320      STA 623
0330      LDA #0      Clear collision
0340      STA 53278   registers
0350 ;-----------------------------
0360 ;Clear player missile stripes
0370 ;of garbage
0380 ;-----------------------------
0390      LDA #0
0400      LDX #0
0410 L1   LDY #0
0420 L1A  STA (203),Y
0430      INY
0440      BNE L1A
0450      INC 204
0460      INX
0470      CPX #5
0480      BNE L1
0490 ;-----------
0500 ;Set colours
0510 ;-----------
0520      LDA COL0
0530      STA 704
0540      LDA COL1
0550      STA 705
0560      LDA COL2
0570      STA 706
0580      LDA COL3
0590      STA 707
0600 ;-------------------
0610 ;Switch on PM system
0620 ;-------------------
0630      JSR LOAD
0640      LDA #3
0650      STA 53277
0660      RTS
0670 ;----------------------
0680 ;Load shape data & set
0690 ;horizontal positions
0700 ;----------------------
0710 LOAD LDA HP0    Player 0
0720      STA HPOSP0
0730      LDA 205
0740      STA 204
0750      INC 204
0760      LDY VP0
0770      LDX #0
0780 L3   LDA SHAPE0,X
0790      STA (203),Y
0800      INX
0810      INY
0820      CPX LEN0
0830      BNE L3
0840 ;
0850      LDA HP1     Player1
0860      STA HPOSP1
0870      INC 204
0880      LDA #0
0890      STA 203
0900      LDY VP1
0910      LDX #0
0920 L4   LDA SHAPE1,X
0930      STA (203),Y
0940      INX
0950      INY
0960      CPX LEN1
0970      BNE L4
0980 ;
0990      LDA HP2     Player2
1000      STA HPOSP2
1010      INC 204
1020      LDA #0
1030      STA 203
1040      LDX #0
1050      LDY VP2
1060 L5   LDA SHAPE2,X
1070      STA (203),Y
1080      INX
1090      INY
1100      CPX LEN2
1110      BNE L5
1120 ;
1130      LDA HP3     Player3
1140      STA HPOSP3
1150      INC 204
1160      LDA #0
1170      STA 203
1180      LDX #0
1190      LDY VP3
1200 L6   LDA SHAPE3,X
1210      STA (203),Y
1220      INX
1230      INY
1240      CPX LEN3
1250      BNE L6
1260      RTS
1270 ;-----------------------
1280 ;Horizontal co-ordiantes
1290 ;-----------------------
1300 HP0 .BYTE 100
1310 HP1 .BYTE 100
1320 HP2 .BYTE 120
1330 HP3 .BYTE 120
1340 ;-----------------------
1350 ;Vertical co-ordinates
1360 ;---------------------
1370 VP0 .BYTE 103
1380 VP1 .BYTE 100
1390 VP2 .BYTE 121
1400 VP3 .BYTE 120
1410 ;-------------
1420 ;Shape lengths
1430 ;-------------
1440 LEN0 .BYTE 13
1450 LEN1 .BYTE 17
1460 LEN2 .BYTE 13
1470 LEN3 .BYTE 16
1480 ;-------------
1490 ;Colour values
1500 ;-------------
1510 COL0 .BYTE 52
1520 COL1 .BYTE 14
1530 COL2 .BYTE 88
1540 COL3 .BYTE 10
1550 ;------------
1560 ;Player ON/OFF FLAGS
1570 ;------------
1580 FLAG0 .BYTE 1
1590 FLAG1 .BYTE 1
1600 FLAG2 .BYTE 0
1610 FLAG3 .BYTE 0
1620 ;---------------
1630 ;Player priority
1640 ;---------------
1650 PRIORITY .BYTE 1
1660 ;----------
1670 ;__________
1680 ;SHAPE DATA
1690 ;__________
1700      *=  PMBASE
1710 SHAPE0 .BYTE 0,40,108,68,0,0,0,0,0,0
   ,56,124,0
1720      *=  PMBASE+190
1730 SHAPE1 .BYTE 0,56,124,254,214,146,18
   6
1740      .BYTE 238,238,238,254,124,124,12
   4,56,56,0
1750      *=  PMBASE+380
1760 SHAPE2 .BYTE 0,36,126,18,86,126,110,
   110,110,126,126,60,0
1770      *=  PMBASE+570
1780 SHAPE3 .BYTE 0,255,219,129,129,129,1
   29
1790      .BYTE 129,129,129,129,129,129,19
   5,255,0
```

Listing 1 - Source code for a machine code routine to initialise the player missile system - other listings overleaf

stripes with zeros to clear out any garbage that may have collected there. Though the player missile RAM area is 2K long the first 768 bytes are not actually needed for the player missile stripes. The value 3 is added to the value of the hi-byte of PMBASE at line 220. This means that, when using the indexed instruction (line 790), the program only clears from PMBASE+768 (or 3 pages above PMBASE), leaving the first 768 bytes free for other use. The missile stripe is then found at PMBASE+768, Player 0 at PMBASE+1024, Player 1 at PMBASE+1280, Player 2 at PMBASE+1536 and Player3 at PMBASE+1792.

Lines 1300 to 1790 assign various addresses as registers that store the parameters which the program needs to set up and control the player missile system. The listing details how these registers are used. For example lines 1510 to 1540 are labelled COL0, COL1 etc. and hold the colour values of each of the players and HP0 to HP3 are the horizontal co-ordinates of the player missile stripes.

OPTION	VALUE
PLAYER 0-3, COLOURS 0-3, BACKGROUND	1
PLAYER 0-1, COLOURS 0-3, PLAYERS 2-3	2
COLOURS 0-3, PLAYERS 0-3, BACKGROUND	4
COLOURS 0-1, PLAYERS 0-3, COLOURS 2-3, BACKGROUND	8
4 MISSILES COMBINED AS FIFTH PLAYER	16
OVERLAPS OF PLAYERS MAKE 3RD COLOUR	32

Figure 2 - PRIORITY VALUES STORED AT 623

continued overleaf

```
1800 ;----------------------
1810 ;MACHINE CODE LIBRARY
1820 ;by Steve Williamson
1830 ;FOR  PAGE  6
1840 ;____________________
1850 ;#3.2 - MOVE PLAYERS
1860 ;____________________
1870       .OPT OBJ
1880       *=  36221
1890 STICK0 = 632
1900 SETPM = 36000
1910 PMLOAD = SETPM+76
1920 ;
1930 MOVE LDA STICK0
1940      CMP #15
1950      BEQ EXIT1
1960      JSR CHECKSTICK
1970 EXIT1 RTS
1980 CHECKSTICK
1990 UP   CMP #14
2000      BNE DOWN
2010      LDA FLAG0
2020      CMP #1
2030      BNE U1
2040      DEC VP0
2050 U1   LDA FLAG1
2060      CMP #1
2070      BNE U2
2080      DEC VP1
2090 U2   LDA FLAG2
2100      CMP #1
2110      BNE U3
2120      DEC VP2
2130 U3   LDA FLAG3
2140      CMP #1
2150      BNE U4
2160      DEC VP3
2170 U4   JSR DELAY
2180      JSR LOAD
2190      RTS
2200 DOWN CMP #13
2210      BNE LEFT
2220      LDA FLAG0
2230      CMP #1
2240      BNE D1
2250      INC VP0
2260 D1   LDA FLAG1
2270      CMP #1
2280      BNE D2
2290      INC VP1
2300 D2   LDA FLAG2
2310      CMP #1
2320      BNE D3
2330      INC VP2
2340 D3   LDA FLAG3
2350      CMP #1
2360      BNE D4
2370      INC VP3
2380 D4   JSR DELAY
2390      JSR LOAD
2400      RTS
2410 LEFT CMP #11
2420      BNE RIGHT
2430      LDA FLAG0
2440      CMP #1
2450      BNE LF1
2460      DEC HP0
2470 LF1 LDA FLAG1
2480      CMP #1
2490      BNE LF2
2500      DEC HP1
2510 LF2 LDA FLAG2
2520      CMP #1
2530      BNE LF3
2540      DEC HP2
2550 LF3 LDA FLAG3
2560      CMP #1
2570      BNE LF4
2580      DEC HP3
2590 LF4 JSR DELAY
2600      JSR LOAD
2610      RTS
2620 RIGHT CMP #7
2630      BNE DIAG1
2640      LDA FLAG0
2650      CMP #1
2660      BNE R1
2670      INC HP0
2680 R1   CMP #1
2690      BNE R2
2700      INC HP1
2710 R2   LDA FLAG2
2720      CMP #1
2730      BNE R3
2740      INC HP2
2750 R3   LDA FLAG3
2760      CMP #1
2770      BNE R4
2780      INC HP3
2790 R4   JSR DELAY
2800      JSR LOAD
2810      RTS
2820 DIAG1 CMP #10
2830      BNE DIAG2
2840      LDA FLAG0
2850      CMP #1
2860      BNE D1.1
2870      DEC HP0
2880      DEC VP0
2890 D1.1 LDA FLAG1
2900      CMP #1
2910      BNE D1.2
2920      DEC HP1
2930      DEC VP1
2940 D1.2 LDA FLAG2
2950      CMP #1
2960      BNE D1.3
2970      DEC HP2
2980      DEC VP2
2990 D1.3 LDA FLAG3
3000      CMP #1
3010      BNE D1.4
3020      DEC HP3
3030      DEC VP3
3040 D1.4 JSR DELAY
3050      JSR LOAD
3060      RTS
3070 DIAG2 CMP #6
3080      BNE DIAG3
3090      LDA FLAG0
3100      CMP #1
3110      BNE D2.1
3120      INC HP0
3130      DEC VP0
3140 D2.1 LDA FLAG1
3150      CMP #1
3160      BNE D2.2
3170      DEC VP1
3180      INC HP1
3190 D2.2 LDA FLAG2
3200      CMP #1
3210      BNE D2.3
3220      DEC VP2
3230      INC HP2
3240 D2.3 LDA FLAG3
3250      CMP #1
3260      BNE D2.4
3270      DEC VP3
3280      INC HP3
3290 D2.4 JSR DELAY
3300      JSR LOAD
3310      RTS
3320 DIAG3 CMP #5
3330      BNE DIAG4
3340      LDA FLAG0
3350      CMP #1
3360      BNE D3.1
3370      INC VP0
3380      INC HP0
3390 D3.1 LDA FLAG1
3400      CMP #1
3410      BNE D3.2
3420      INC VP1
3430      INC HP1
3440 D3.2 LDA FLAG2
3450      CMP #1
3460      BNE D3.3
3470      INC VP2
3480      INC HP2
3490 D3.3 LDA FLAG3
3500      CMP #1
3510      BNE D3.4
3520      INC VP3
3530      INC HP3
3540 D3.4 JSR DELAY
3550      JSR LOAD
3560      RTS
3570 DIAG4 CMP #9
3580      BNE EXIT2
3590      LDA FLAG0
3600      CMP #1
3610      BNE D4.1
3620      DEC HP0
3630      INC VP0
3640 D4.1 LDA FLAG1
3650      CMP #1
3660      BNE D4.2
3670      DEC HP1
3680      INC VP1
3690 D4.2 LDA FLAG2
3700      CMP #1
3710      BNE D4.3
3720      DEC HP2
3730      INC VP2
3740 D4.3 LDA FLAG3
3750      CMP #1
3760      BNE D4.4
3770      DEC HP3
3780      INC VP3
3790 D4.4 JSR DELAY
3800      JSR LOAD
3810 EXIT2 RTS
3820 DELAY LDY #100
3830 L7   LDX #25
3840 L8   DEX
3850      BNE L8
3860      DEY
3870      BNE L7
3880      RTS
```

Listing 2 - moves selected players around the screen with a joystick

Addresses 704 to 707 set the colour of each player. Lines 520 to 590 store the colour values in these locations.

Lines 710 to 1260 take care of loading the shape data for each of the players into the player missile stripes. The program uses the 768 byte area at the bottom of the reserved player missile RAM to hold the shape data (see lines 1710 to 1780). Although any free area of RAM could be used to store this information, these 768 bytes are a convenient storage place as they can hold up to 190 bytes of data for each player.

DESIGNING PLAYERS

In order to design a player shape you can use graph or squared paper. Take an area 8 squares wide and colour in squares corresponding to the shape you need. For each horizontal line assign a value of 128 for the first square, 64 the second, 32 the third, 16 the fourth, 8 the fifth, 4 the sixth, 2 the seventh and 1 the eighth. Add up the values of squares that are filled in and the resultant number can be used by the player missile system to reproduce that design.

That was the difficult method. An easier way is to use a player missile designer program. A good program to do this can be found on Disk #35 of the PAGE 6 public domain library (and its inexpensive). This provides a set of designing tools and will calculate the data for you. For really professional animation there is the expensive method - buy an ST and Advanced OCP Art Studio! This program has a mode that emulates the pixel size of Atari 8-bit player missile graphics and provides sophisticated tools to create complex animation sequences. The dice animation sequence in my program Las Vegas Casino (Zeppelin Games), was designed and tested with the Art Studio using 39 frames of player missile animation. The data was then converted from 16-bit format to 8-bit format via a program that I wrote in ST BASIC.

Lines 1710 to 1790 contain sample shapes and can be altered to your own designs. If you want shapes to move around the screen then make sure to begin each set of data with zero and end with zero otherwise a trail of pixels will appear on the screen during animation routines.

The shape data is loaded from the vertical position in the player stripes according to the values set by the registers VP0 to VP3. The horizontal positions are set by the registers HP0 to HP3. These horizontal coordinates are stored at addresses 53248 to 53251 which ANTIC uses to control the horizontal positions of the player stripes.

The registers LEN0 to LEN3 hold the length of the shape data. They should be equal to the number of bytes used for each shape. Finally, 3 is stored at location 53277 to switch on the PM system (lines 750-760).

To customise the routine for your own use all you need to do is change the values of the registers in lines 1300 to 1650. If you do not want to use a particular player then set the horizontal and vertical registers (HP and VP) to zero and the length (LEN) to 1 (not zero).

MOVING YOUR PLAYERS

The second routine (Listing 2) moves selected players around the screen with a joystick.

The routine starts at line 1800 as it needs to be merged with the first program to operate correctly. The ON/OFF registers (see lines 1580 to 1610) decide which players are affected by the joystick. A value of 1 means that any joystick movement will affect the corresponding player, and a value of 0 means that the player is unaffected. The current position of a joystick plugged into port 1 is found at address 632 (633 for port 2). Figure 3 shows the values for each of the 8 directions.

Lines 1930 to 1960 check to see if the joystick is at the rest position (a value of 15). If so, then the program does not need to check any further and exits the routine (EXIT1). The program then reads the joystick direction and, after checking the status of the player ON/OFF flags, alters the horizontal and vertical registers (HP and VP) accordingly. A delay loop is needed (lines 3820 to 388), otherwise the player will move too fast. The load section of listing 1 is used to replot the player at the new position.

In order to test the routines, assemble them to memory, then write a short routine :-

```
        JSR SETPM
LOOP JSR MOVE
        JMP LOOP
```

If using the Atari Assembler Cartridge or MAC 65 you can use the debugging mode to run the routine.

In most applications before the program goes back to the move routine, other routines are accessed to check collision detection, limit the area in which the players can move, increment scores etc.

The routine as it stands plots 4 players on the screen. Players 0 and 1 flags are set so that these two players move. Player 0 is shaped like a face and player 1 is the eyes and mouth.

The routine is designed to be flexible and will suit a lot of applications as it stands - whilst also being easy to adapt to more sophisticated animation. Try changing some of the registers and parameters to see how they affect the program.

```
EI 1 REM ********************************
OF 2 REM *    MACHINE CODE LIBRARY 3    *
HG 3 REM *    PLAYER MISSILE SYSTEM     *
HW 4 REM *          Listing 3           *
FD 5 REM *    by Stephen Williamson     *
ED 6 REM * ---------------------------- *
BA 7 REM * NEW ATARI USER - AUGUST 89   *
EP 8 REM ********************************
SE 50 GRAPHICS 0:SETCOLOR 2,0,0
MY 60 GOSUB 30000
WC 70 REM LOAD SHAPE  DATA
DZ 80 RESTORE 90:FOR I=0 TO 12:READ A:POK
   E SHAPE0+I,A:NEXT I
OO 90 DATA 0,40,100,68,0,0,0,0,0,0,56,124
   ,0
VP 100 RESTORE 110:FOR I=0 TO 16:READ A:P
   OKE SHAPE1+I,A:NEXT I
KI 110 DATA 0,56,124,254,214,146,186,238,
   238,238,254,124,124,124,56,56,0
UF 120 RESTORE 130:FOR I=0 TO 12:READ A:P
   OKE SHAPE2+I,A:NEXT I
OR 130 DATA 0,36,126,18,86,126,110,110,11
   0,126,126,60,0
AQ 140 RESTORE 150:FOR I=0 TO 15:READ A:P
   OKE SHAPE3+I,A:NEXT I
UZ 150 DATA 0,255,219,129,129,129,129,129
   ,129,129,129,129,129,195,255,0
TS 160 REM SET PARAMETERS
DI 170 POKE VP0,114:POKE VP1,111
GK 180 POKE HP0,100:POKE HP1,100
RD 190 POKE VP2,120:POKE VP3,127
ZV 200 POKE HP2,120:POKE HP3,120
WI 210 POKE LEN0,13:POKE LEN1,17
YH 220 POKE LEN2,13:POKE LEN3,16
UA 230 POKE COL0,52:POKE COL1,14
YB 240 POKE COL2,88:POKE COL3,10
EP 250 POKE FLAG0,1:POKE FLAG1,1
GC 260 POKE FLAG2,0:POKE FLAG3,0
TP 270 POKE PRIORITY,1:POKE SDMCTL,62
WP 280 POKE DELAY,10
BV 290 REM CALL SET PMSYSTEM ROUTINE
MG 300 A=USR(35999)
IZ 310 REM CALL MOVE PLAYERS ROUTINE
CS 320 A=USR(36224)
NE 330 GOTO 320
ND 29998 REM SET UP PMSYSTEM
VD 29999 REM & MOVE PLAYERS MC ROUTINES
HY 30000 RESTORE 30130
SX 30010 FOR I=35999 TO 36699:READ A:POKE
    I,A
FT 30020 NEXT I
YC 30030 PMBASE=36864:SHAPE0=PMBASE
CL 30040 SHAPE1=PMBASE+190:SHAPE2=PMBASE+
   300
KJ 30050 SHAPE3=PMBASE+570
IL 30060 HP0=36200:HP1=36201:HP2=36202:HP
   3=36203
WL 30070 VP0=36204:VP1=36205:VP2=36206:VP
   3=36207
SA 30080 LEN0=36208:LEN1=36209:LEN2=36210
   :LEN3=36211
UN 30090 COL0=36212:COL1=36213:COL2=36214
   :COL3=36215
MG 30100 FLAG0=36216:FLAG1=36217:FLAG2=36
   218:FLAG3=36219
YZ 30110 PRIORITY=36220:DELAY=36692:SDMCT
   L=36017
DK 30120 RETURN
ID 30130 DATA 104,169,144,141,7,212,24,10
   5,3,133,204,133,205,169,0,133,203,169,
   62,141,47
TX 30140 DATA 2,173,124,141,141,111,2,169
   ,0,141,30,208,169,0,162,0,160,0,145,20
   3
UU 30150 DATA 200,208,251,230,204,232,224
   ,5,208,242,173,116,141,141,192,2,173,1
   17,141,141
CG 30160 DATA 193,2,173,118,141,141,194,2
   ,173,119,141,141,195,2,32,243,140,169,
   3,141
TG 30170 DATA 29,208,96,173,104,141,141,0
   ,208,165,205,133,204,230,204,172,108,1
   41,162,0
UJ 30180 DATA 189,0,144,145,203,232,200,2
   36,112,141,208,244,173,105,141,141,1,2
   08,230,204
AE 30190 DATA 169,0,133,203,172,109,141,1
   62,0,189,190,144,145,203,232,200,236,1
   13,141,208
BU 30200 DATA 244,173,106,141,141,2,208,2
   30,204,169,0,133,203,162,0,172,110,141
   ,189,124
OW 30210 DATA 145,145,203,232,200,236,114
   ,141,208,244,173,107,141,141,3,208,230
   ,204,169,0
PT 30220 DATA 133,203,162,0,172,111,141,1
   89,58,146,145,203,232,200,236,115,141,
   208,244,96
WJ 30230 DATA 100,100,120,120,103,100,121
   ,120,13,17,13,16,52,14,88,10,1,1,0,0
BN 30240 DATA 1,32,160,140,104,173,120,2,
   201,15,240,3,32,140,141,96,201,14,208,
   47
UJ 30250 DATA 173,120,141,201,1,208,3,206
   ,108,141,173,121,141,201,1,208,3,206,1
   09,141
TR 30260 DATA 173,122,141,201,1,208,3,206
   ,110,141,173,123,141,201,1,208,3,206,1
   11,141
JP 30270 DATA 32,81,143,32,243,140,96,201
   ,13,208,47,173,120,141,201,1,208,3,238
   ,108
YE 30280 DATA 141,173,121,141,201,1,208,3
   ,238,109,141,173,122,141,201,1,208,3,2
   38,110
IE 30290 DATA 141,173,123,141,201,1,208,3
   ,238,111,141,32,81,143,32,243,140,96,2
   01,11
JH 30300 DATA 208,47,173,120,141,201,1,20
   8,3,206,104,141,173,121,141,201,1,208,
   3,206
LK 30310 DATA 105,141,173,122,141,201,1,2
   08,3,206,106,141,173,123,141,201,1,208
   ,3,206
SL 30320 DATA 107,141,32,81,143,32,243,14
   0,96,201,7,208,44,173,120,141,201,1,20
   8,3
GI 30330 DATA 238,104,141,201,1,208,3,238
   ,105,141,173,122,141,201,1,208,3,238,1
   06,141
XD 30340 DATA 173,123,141,201,1,208,3,238
   ,107,141,32,81,143,32,243,140,96,201,1
   0,208
TM 30350 DATA 59,173,120,141,201,1,208,6,
   206,104,141,206,108,141,173,121,141,20
   1,1,208
SU 30360 DATA 6,206,105,141,206,109,141,1
   73,122,141,201,1,208,6,206,106,141,206
   ,110,141
FT 30370 DATA 173,123,141,201,1,208,6,206
   ,107,141,206,111,141,32,81,143,32,243,
   140,96
US 30380 DATA 201,6,208,59,173,120,141,20
   1,1,208,6,238,104,141,206,108,141,173,
   121,141
UR 30390 DATA 201,1,208,6,206,109,141,238
   ,105,141,173,122,141,201,1,208,6,206,1
   10,141
RZ 30400 DATA 238,106,141,173,123,141,201
   ,1,208,6,206,111,141,238,107,141,32,81
   ,143,32
PD 30410 DATA 243,140,96,201,5,208,59,173
   ,120,141,201,1,208,6,238,108,141,238,1
   04,141
OH 30420 DATA 173,121,141,201,1,208,6,238
   ,109,141,238,105,141,173,122,141,201,1
   ,208,6
CS 30430 DATA 238,110,141,238,106,141,173
   ,123,141,201,1,208,6,238,111,141,238,1
   07,141,32
ZH 30440 DATA 81,143,32,243,140,96,201,9,
   208,58,173,120,141,201,1,208,6,206,104
   ,141
ZH 30450 DATA 238,108,141,173,121,141,201
   ,1,208,6,206,105,141,238,109,141,173,1
   22,141,201
ZX 30460 DATA 1,208,6,206,106,141,238,110
   ,141,173,123,141,201,1,208,6,206,107,1
   41,238
RR 30470 DATA 111,141,32,81,143,32,243,14
   0,96,160,100,162,25,202,208,253,136,20
   8,248,96
```

Listing 3 - BASIC program using the machine code routines

continued overleaf with listings 4 and 5

Listing 3 is a BASIC program that uses the machine code routines and is a good example of how a BASIC program can interact with machine code. Lines 30000 to 30470 assign variables to the registers used by the machine code routine and load the machine code data to RAM. Refer to lines 1280 to 1790 in listing 1 for an explanation of what each of these registers is used for. The data is essentially the same as the machine code in listings 1 and 2 apart from the inclusion of 2 PLA instructions so that the routines can return to BASIC.

Lines 10 to 370 are an example of how to use the machine code routine, but of course they can be adapted to suit your needs. Lines 80 to 150 load the shape data and lines 160 to 280 set the parameters by POKEing data to the various registers. Note line 280 which sets the delay timer that affects how fast the players move.

Line 300 calls up the initialisation routine and line 320 calls the move routine. The program then sets up a loop to continually access the move routine. If you want to use this as the framework for your own game then after line 320 include commands to go to subroutines for collision detection, limiting how far players can move etc. Depending on how long these extra routines are, you may need to reduce the value of the variable DELAY to speed things up a bit.

The only restriction in the BASIC version is that the machine code must reside from 35999 to 36699 and PMBASE must reside at 36864 so make sure that other parts of the program do not clash with this.

```
10 ;MACHINE CODE LIBRARY
20 ;by Steve Williamson
30 ;for PAGE 6
40 ;____________________________
50 ;#3.4 SET UP PLAYER MISSILE SYSTEM
60 ;BASIC VERSION
70 ;____________________________
80 ;
90 ;Load to variable SETPM$
0100 ;Call with:
0110 ;A=USR(ADR(SETPM$),PMBASE,SDMTCL,
   8 ;PRIORITY,DUMMY)
0120 ;____________________________
0130 ;
0140      *=  36000
0150      .OPT OBJ
0160 HPOSP0 = 53248
0170 HPOSP1 = 53249
0180 HPOSP2 = 53250
0190 HPOSP3 = 53251
0200 HP0 =    1536
0210 HP1 =    1537
0220 HP2 =    1538
0230 HP3 =    1539
0240 VP0 =    1540
0250 VP1 =    1541
0260 VP2 =    1542
0270 VP3 =    1543
0280 LEN0 =  1544
0290 LEN1 =  1545
0300 LEN2 =  1546
0310 LEN3 =  1547
0320 SHAPE0 = 1548
0330 SHAPE1 = 1608
0340 SHAPE2 = 1668
0350 SHAPE3 = 1728
0360 ;---------------------
0370 ;Initialise registers
0380 ;---------------------
0390      PLA
0400      PLA           Get PMBASE
0410      STA 204
0420      STA 54279
0430      CLC
0440      ADC #3
0450      STA 204
0460      STA 205
0470      LDA #0
0480      STA 203
0490      PLA
0500      PLA
0510      PLA           Get SDMCTL
0520      STA 559
0530      PLA
0540      PLA           Get PRIORITY
0550      STA 623
0560      LDA #0        Clear collision
0570      STA 53278     registers
0580 ;---------------------------
0590 ;Clear player missile stripes
0600 ;of garbage
0610 ;---------------------------
0620      LDA #0
0630      LDX #0
0640 L1   LDY #0
0650 L1A  STA (203),Y
0660      INY
0670      BNE L1A
0680      INC 204
0690      INX
0700      CPX #5
0710      BNE L1
0720 ;---------------------
0730 ;Switch on PM system
0740 ;---------------------
0750      LDA #3
0760      STA 53277
0770 ;---------------------
0780 ;Load shape data & set
0790 ;horizontal positions
0800 ;---------------------
0810      PLA
0820 LOAD LDA HP0     Player 0
0830      STA HPOSP0
0840      LDA 205
0850      STA 204
0860      INC 204
0870      LDY VP0
0880      LDX #0
0890 L3   LDA SHAPE0,X
0900      STA (203),Y
0910      INX
0920      INY
0930      CPX LEN0
0940      BNE L3
0950 ;
0960      LDA HP1     Player1
0970      STA HPOSP1
0980      INC 204
0990      LDA #0
1000      STA 203
1010      LDY VP1
1020      LDX #0
1030 L4   LDA SHAPE1,X
1040      STA (203),Y
1050      INX
1060      INY
1070      CPX LEN1
1080      BNE L4
1090 ;
1100      LDA HP2     Player2
1110      STA HPOSP2
1120      INC 204
1130      LDA #0
1140      STA 203
1150      LDX #0
1160      LDY VP2
1170 L5   LDA SHAPE2,X
1180      STA (203),Y
1190      INX
1200      INY
1210      CPX LEN2
1220      BNE L5
1230 ;
1240      LDA HP3     Player3
1250      STA HPOSP3
1260      INC 204
1270      LDA #0
1280      STA 203
1290      LDX #0
1300      LDY VP3
1310 L6   LDA SHAPE3,X
1320      STA (203),Y
1330      INX
1340      INY
1350      CPX LEN3
1360      BNE L6
1370      RTS
```

Listing 4 - Source code for a relocatable machine code routine for use in a BASIC program

USING THE ROUTINES IN BASIC PROGRAMS

Listing 4 is the source code for a machine code routine for use in a BASIC program that is completely relocatable so that it can be loaded to a string variable. All registers to control the routine are assigned to the page 6 area (between 1536 and 1791). The length of a player shape is restricted to a maximum of 60 bytes.

Listing 5 demonstrates how to use this routine. Lines 30000 to 30180 load the machine code to a variable SETPM$ and assign variables to the page 6 registers. Line 210 calls up this routine and passes the parameters PMBASE, SDMCTL and PRIORITY to the routine. Refer to Figures 1 and 2 to decide the values of SDMCTL and PRIORITY. As before, remember to set PMBASE on a 2k boundary.

Lines 230 to 290 is an example of how to control the players. Lines 250 and 260 read the joystick direction values and line 270 alters the appropriate horizontal and vertical registers. Line 280 calls up the part of the machine code routine that moves the players.

The advantage of listing 5 is that the machine code is completely relocatable and therefore there is no danger of clashing with other areas of RAM used by the program. PMBASE can also be variable. It is much shorter than the first routine. The disadvantage is that the joystick read routine is in BASIC which restricts the speed at which the players move. ●

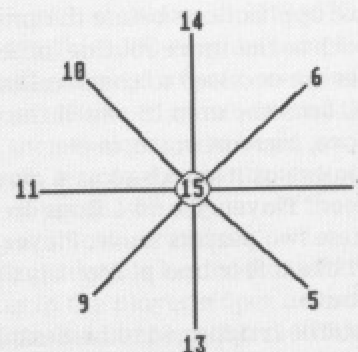
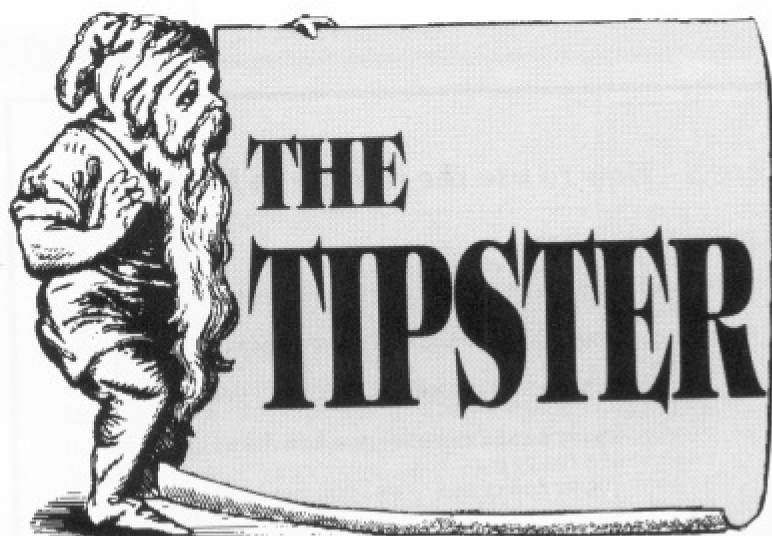


Figure 3 - JOYSTICK DIRECTIONS

MACHINE CODE LIBRARY

Listing 5 - How to use the routine in listing 4

```
EI 1 REM ********************************
QF 2 REM *     MACHINE CODE LIBRARY 3    *
MG 3 REM *     PLAYER MISSILE SYSTEM     *
JW 4 REM *          Listing 5            *
FD 5 REM *     by Stephen Williamson     *
ED 6 REM * ----------------------------- *
BA 7 REM * NEW ATARI USER - AUGUST 89    *
EP 8 REM ********************************
SE 50 GRAPHICS 0:SETCOLOR 2,0,0
NL 60 GOSUB 30010
MG 70 REM SET STARTING POSITIONS
OZ 80 POKE VP0,114:POKE VP1,111
JT 90 POKE HP0,128:POKE HP1,128
TT 100 POKE COL0,52:POKE COL1,14
WH 110 POKE LEN0,13:POKE LEN1,17
RD 120 REM LOAD SHAPE DATA
TT 130 RESTORE 150
TZ 140 FOR I=0 TO 12:READ A:POKE SHAPE0+I
   ,A:NEXT I
OL 150 DATA 0,40,108,68,0,0,0,0,0,0,56,12
   4,0
VP 160 RESTORE 180
YF 170 FOR I=0 TO 16:READ A:POKE SHAPE1+I
   ,A:NEXT I
KW 180 DATA 0,56,124,254,214,146,186,238,
   238,238,254,124,124,124,56,56,0
TY 190 REM SET PARAMETERS
NY 200 PMBASE=36864:SDMTCL=62:PRIORITY=1
UA 210 A=USR(ADR(SETPM$),36864,62,1,0)
EL 220 REM MOVE PLAYERS
XG 230 ST=STICK(0)
QH 240 Y=PEEK(VP1):X=PEEK(HP1)
JF 250 Y1=Y+(ST=13)+(ST=9)+(ST=5)-(ST=6)-
   (ST=10)-(ST=14)
ZE 260 X1=X+(ST=6)+(ST=7)+(ST=5)-(ST=9)-(
   ST=10)-(ST=11)
HX 270 POKE VP0,Y1+3:POKE VP1,Y1:POKE HP0
   ,X1:POKE HP1,X1
VA 280 A=USR(ADR(SETPM$)+58)
NQ 290 GOTO 230
IN 30000 REM SET UP PMSYSTEM
UJ 30010 HP0=1536:HP1=1537:HP2=1538:HP3=1
   539
RJ 30020 VP0=1540:VP1=1541:VP2=1542:VP3=1
   543
IB 30030 LEN0=1544:LEN1=1545:LEN2=1546:LE
   N3=1547
TB 30040 SHAPE0=1548:SHAPE1=1608:SHAPE2=1
   668:SHAPE3=1728
GL 30050 COL0=704:COL1=705:COL2=706:COL3=
   707
NB 30060 DIM SETPM$(182)
OO 30070 RESTORE 400
VS 30080 FOR I=1 TO 180:READ A:SETPM$(I,I
   )=CHR$(A):NEXT I
EJ 30090 RETURN
OL 30100 DATA 104,104,133,204,141,7,212,2
   4,105,3,133,204,133,205,169,0,133,203,
   104,104
UG 30110 DATA 104,141,47,2,104,104,141,11
   1,2,169,0,141,30,208,169,0,162,0,160,0
UA 30120 DATA 145,203,200,208,251,230,204
   ,232,224,5,208,242,169,3,141,29,208,10
   4,104,173,0,6
ME 30130 DATA 141,0,208,165,205,133,204,2
   30,204,172,4,6,162,0,189,12,6,145,203,
   232
IZ 30140 DATA 200,236,8,6,208,244,173,1,6
   ,141,1,208,230,204,169,0,133,203,172,5
OU 30150 DATA 6,162,0,189,72,6,145,203,23
   2,200,236,9,6,208,244,173,2,6,141,2
FD 30160 DATA 208,230,204,169,0,133,203,1
   62,0,172,6,6,189,73,6,145,203,232,200,
   236
SU 30170 DATA 10,6,208,244,173,3,6,141,3,
   208,230,204,169,0,133,203,162,0,172,7
KO 30180 DATA 6,189,74,6,145,203,232,200,
   236,11,6,208,244,96,0,0,0,0,0,0
```



You like it!

Well you certainly proved the need for a column such as this if your responses are anything to go by .... or was it the lure of a couple of tickets for Alton Towers that did the trick?!! As promised in the last issue, I've included the full solution to 'Cloak Of Death' and would like to thank all those readers who promptly answered the majority of pleas for help. In this latter respect I would particularly like to thank Steve Beach of Birmingham for being first in coming to the rescue of a struggling Simon Ashley who was in trouble with 'Draconus' - and for good measure, Jonathan Simpson provides a useful map!!

Thanks to all who sent in information and tips on Atari games and those who sought help through these pages. Don't worry if your tips were apparently ignored this time, they are all being stored up and we'll fit 'em all in eventually!! Now let's get on with it.

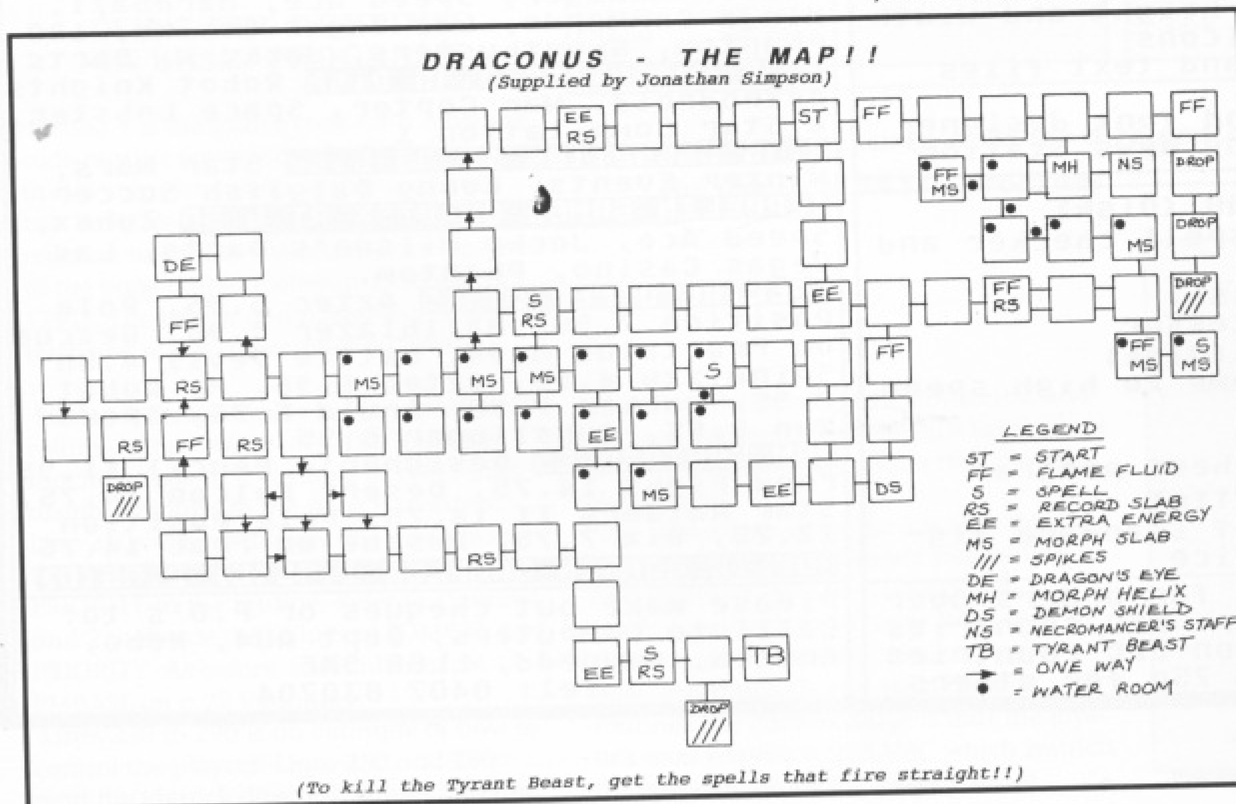
DRACONUS IS BEATEN!

Let's start off with the one that we had most questions on last time. The three problems encountered in Issue 38 are all related as, without the Necromancer's Staff the spells cannot be collected, and without the spells the Tyrant Beast cannot be defeated. To get the staff, first collect the Eye of Serekos and then proceed back up to the top level and the room where the Morph Helix was found. In the upper half of the room - at the far right - a section of wall has now disappeared! (The Eye of Serekos sees through all illusions!!). The Necromancer's Staff is in the next room. Once this is obtained, the spells can be collected and these in turn can be used against the Tyrant Beast .... he still takes a LOT of beating, though!!

Now on to a veritable feast of tips from your fellow readers! A whole mix of hints and cheats that will help you get a whole lot more out of some of your favourite games. Paul Parry of Lichfield, Staffs starts us off with these cheats.

It's easy to go through the levels on Tynesoft's **PHANTOM**. If you have the cassette version and cannot complete a level, simply QUIT the game and the program will then allow you to load up the next level from tape, so you can go on through ALL the levels on just ONE life!

A lot of programmers put their own cheat codes into games so that they can play test them and here are a couple written by the same programmer. First is **HENRY'S HOUSE** (Mastertronic). On the title screen, enter 'CPM' while the music plays, and a picture of a little bug will appear. You now have infinite lives! **MIRAX FORCE** (Tynesoft) works in the same way. Simply type in 'CPM' on the title screen for that little bug to help you out again, this time by disabling the collision detection.



On to some gaming hints now rather than cheats. Simon Bodger of Chichester has been playing a couple of quite different games and has discovered ways to get a bit more out of them. Do you want to be first off the block in **SPEED ACE**? Just push

HACKER

The password to log on is AUSTRALIA
The security checks are:
(1) MAGMA(space)LTD
(2) AX-0310479
(3) HYDRAULIC
(4) AUSTRALIA
Don't that just spoil the challenge!

the joystick upwards at the options screen and keep it there as you press '0' to start the game. This will give you a much faster start. In Atlantis's **LEAGUE CHALLENGE** you can get better results by NOT playing! In order to gain a better place in the league, it is important to have fit players so if you don't mind NOT trying to win the Cup, you can have NONE of your team playing in the 2nd match of the season (a CUP match), and then all of your players will be fully fit to compete in the league games! There's a test to see how good a simulation it is, I wonder if the League management come down on you like a ton of bricks, slap on a hefty fine and ban you from further Cup competitions!

Graham Plumbe from Burntwood, Staffs has come up with some tips on a couple of very popular games. **INTERNATIONAL KARATE** is one that some people find hard but if you hold down 'X' on the keyboard and a number between 1 and 4, you can change the speed of the game. '4' is the slowest and '1' the fastest. **ENCOUNTER** is newly re-released by Atlantis now and there will be a lot of new players of this all-time classic which can be very, very hard unless you are a good player. Here's a couple of tips that should get you a lot further in the game. Watch out for the missiles and as soon as you see a missile flying towards you, put your tank into full reverse and start firing. Once you have completed a screen you have to go through a Black Hole. Look between the sights and, when you see an asteroid appear, move the joystick to one side and you should be able to avoid it without having to move around too much.

THE CLOAK OF DEATH SOLUTION

As promised here is the full solution but *BE WARNED*, this is the complete solution and could spoil the game for you if you read too far. Read it at your peril. That busy chap Brian Sweeney provided the solution for you all.

N - GET CHEST - E - LOOK DESK - GET BIBLE - S - LOOK FIREPLACE - W - W - GET CHAIR - N - DROP CHAIR - STAND ON CHAIR - LOOK - LOOK CUPBOARD - GET MATCHES - GET KNIFE - S - E - DROP BIBLE - LOOK - GO CORRIDOR - DROP CHEST - KICK CHEST - LOOK CHEST - GET KEY - W - GET CANDLE - E - OPEN DOOR - LIGHT CANDLE - DROP MATCHES - GO DOOR - GET IRON - UP - S - DROP KNIFE - GET BIBLE - UP - W - PULL CORD - DROP IRON - E - DOWN - GET KNIFE - GO CORRIDOR - GO DOOR - E - GET HAMMER - GET SAW - S - DROP SAW - GET RAG - N - E - DROP RAG - W - W - UP - S - UP - N - N - LOOK SHELVES - PULL BOOK - GO PASSAGEWAY - UP - E - REMOVE NAILS - DROP HAMMER - GO HATCH - GET WIRE - S - PUSH TABLE - W - DOWN - W - S - W - GO ANNEXE - GET GOBLET - E - E - S - DOWN - GO CORRIDOR - GO DOOR - E - S - DROP BIBLE - GET SAW - GET BAR - CUT BAR - MAKE CROSS - DROP SAW - GET BIBLE - GET CROSS - N - W - UP - S - W - N - LOOK SINK - GET WATER - S - E - UP - N - E - EXORCISE CLOAK - DROP GOBLET - GET PAINTING - OPEN SAFE - 1327 - LOOK SAFE - GET KEY - DROP CROSS - DROP BIBLE - W - S - DOWN - E - GET COAL - W - GO CORRIDOR - GET MATCHES - GO DOOR - E - E - DROP COAL - LIGHT COAL - OPEN GATE - E .... to freedom!!

SURPRISE ... SURPRISE!

Here's a couple of mysteries sent in by A.C. Thompson of Cwmbran, Gwent. It would be nice to tell you what happens but The Tipster is getting too old now to escape all those falling boulders. You should see the bumps on my head! Try them for yourselves, and see what surprises are in store.

Firstly **BOULDERDASH II**. If you can enter your 'EXIT' exactly as your time clicks to zero, you will have a brilliant surprise!! This only works on the early stages though and requires precision timing. You are gonna get a lot of practice on level 1! **BLUE MAX** is the other one. Try bombing your own hangar in this game, instead of landing and you may find a hint or two for up-and-coming programmers to illustrate how games are programmed!

Another one from Graham Plumbe concerns **ATARI ARTIST**. On the main menu, if you position the cursor over the centre of the Atari logo and press the fire button, a piece of music is played!

KEEP 'em COMING!

Lot's of requests for help amongst the tips sent in to give you all something to work on for next time. Let's be hearing from you on these problems that your fellow Atarians need help with. First off **QUEST FOR ETERNITY**, lots and lots of people wrote about this, how about a solution, whole or partial?

From Kieron Wray comes a request for help with **SPIKY HAROLD** - anything at all welcomed at least how to get to the second level! We were able to help with his Miner 2049er query but it's over to you for the hedgehog tips.

Still no sign of any information on **OPERA HOUSE** and **DARK CRYSTAL** .... are they THAT difficult or has anyone actually completed either of these? Hang on a minute. The Editor tells me that Dark Crystal is hard but that he mapped the first section and also knows how to get to the next part. He's not letting on yet, maybe I can twist his arm (or something!) for next time!

GIVE AWAY TIME

The two free tickets for ALTON TOWERS go to Jonathon Simpson for his map of Draconus. He must have fought long and hard to have got all the way round. We want a full map of the Black Hole next time, Jonathon!

Next issue we are giving away ***A SONY WALKMAN PERSONAL HI-FI!!*** *Hardened games junkies can put in their favourite tapes and listen to those loading sounds all day long! This goodie will go to the hint, tip, cheat or map chosen to be the best of the bunch so keep 'em coming. How about some suggestion too for some more give aways? Not computer stuff, cos' everyone has most of the programs available, but something more unusual and not too expensive like a trip to Disneyland, the Tipster's pockets aren't deep enough for that (I ain't even been to Alton Towers)! It's the fun of it all that counts. Send everything to* ***THE TIPSTER, NEW ATARI USER, P.O. BOX 54, STAFFORD, ST16 1DR***

A TIPSTER EXCLUSIVE!



Every reader sending new hints, tips, cheats, maps etc. to THE TIPSTER will receive an EXCLUSIVE TIPSTER badge! There is no other way you can get one of these badges so you had better get exploring all those Atari games and send in some info, pronto.

TURBO BASIC

A TUTORIAL SERIES BY GORDON CAMERON

4. CRUNCHING SOME NUMBERS

Because of an early deadline caused by the advent of the Atari Show, I thought I'd change the format slightly this time, and start off by trying to answer some of the questions posed in your letters.

Firstly, Mr. L. Walsham of Leigh on Sea asks if Turbo Basic is available on his 16k Atari 400. Although I don't know for sure, I think a version of the language for the 400/800 machines is available from the Public Domain Library of 'Monitor' on disk only. This is an excellent quarterly magazine published by 'The U. K. Atari Owners Club', an independent user group, and I thoroughly recommend you at least take a look at it. You should be able to get further details by contacting the editor, Roy Smith, at P. O. Box 3, Rayleigh, Essex SS6 8LR. I am sure the Editor will back me up when I say that this is one of the better independent publications for the Atari machines.

Next, Luis Barreto from Portugal wonders why he can't save files on his DOS 3 formatted disks after he loads Turbo Basic. The answer is that TB is saved under DOS 2.5, and the two formats are incompatible. DOS 2.5 is the more popular system, as well as being the widely accepted standard, so I recommend that you use it, rather than the more recent version 3.

From Macclesfield comes a query from Mike Falconer regarding documentation for TB. As far as I know, all that is currently available (in English) is the pamphlet translated by the Western New York Atari Users' Group, which gives some basic information on the available commands. It comes with the language if you order it from the Page 6 Accessory Shop. Incidentally, I still get people asking where they can get Turbo Basic. Most Public Domain libraries, including the Page 6 one, stock it, so you should have no trouble in that respect.

HINTS

Finally, a couple of hints suggested by readers. Andrew Thompson from Cwmbran in Gwent has found the vector address for the Basic statement table. If you look at memory locations starting at **DPEEK(149)** through to **DPEEK(149)+234**, and locations 63847 to 64196 (he hasn't yet discovered vectors for these - can anyone help?), and print out their contents, you should be able to see the entire command set!

Also, an English language version of the TB compiler is now available thanks to an old friend from the ARK, Martin Holland from Lower Penn. If you are interested, and would like to be able to make sense of those German prompts, drop me or Les a line, and we'll see what we can do.

Please carry on writing, even if only to offer comments on the article. I try and answer all the letters as quickly as I can. A word of thanks to all those who did bother to write - there are too many names to list, but you know who you are. Thanks.

MORE NEW COMMANDS

As I said, I am writing this at very short notice, and, unfortunately, I am separated from the 8-bit. Consequently, I haven't been able to write any substantial new programs, but have managed to drag out an old graphics demonstration which I translated from an ST effort - this appears as Listing Two. Also, I managed to dictate Listing One to one of my brothers on the phone(!), so it's thanks to Andrew and Scott Cameron that it appears at all! This program shows the use of the commands **!**, **&** and **EXOR**, and supplies a procedure which will convert a string (stored in G_S$) into another, with the entire text changed to upper case (set G_TYPE=TO_UPPER), to lower case (G_TYPE=TO_LOWER) or with lower case changed to upper, AND vice versa (G_TYPE=SWAP). Make sure you ONLY use characters a-z and A-Z. Using spaces, full stops etc.. will cause unexpected results! It is easy to change the program so that all these characters remain unchanged, but I leave this to you. Hopefully, these listings will be of some use.

This issue, I thought I'd try and cover some of the TB commands which deal with arithmetic, as well as the so-called 'logical' commands hinted at earlier.

ARITHMETIC COMMANDS

The number system we normally use makes use of the 10 characters 0, 1, 2, 3, 4, 5, 6, 7, 8 & 9. This system is known as decimal, or base 10, and although it is ideal for most 'human' purposes, when dealing with computers another system, known as hexadecimal, or base 16, is often employed. This is preferred by most technical literature and programmers alike, and allows bigger numbers to be represented in a more compact fashion. Hexadecimal uses not 10, but 16 characters to represent 'digits' in the number. The system goes 0, 1, 2 .... 9 but then the count continues A, B, C, D, E and then F. (Conceptually, A=11, B=12 ... E=15). A base of 16 means that we have a 'units' column, a 'sixteens' column, a 'two-hundred-and-fifty-sixs' column, and so on, with each column representing an increasing power of 16. This compares with the decimal system we are all familiar with, which has a 'units' column, a 'tens' column, a 'hundreds' column etc. Here, each column represents a power of 10, with the rightmost column, the 'units', ten to the power of zero.

As a quick example, the number 'ABC' in hexadecimal is equal to 10(or A)*16^2 plus 11*16^1 plus 12*16^0 in decimal - i.e. 2560+176+12 = 2748. So 2748 in decimal is 'ABC' in hexadecimal. I'm sorry if this is vague, but I haven't the room to go into a full explanation - any Arithmetic book should give you some more help, if you need it.

Luckily, Turbo Basic supplies us with a mechanism to change from hex(adecimal) to decimal, and vice versa. The command **HEX$(x)** will return a string corresponding to the hex version of

x. Since these numbers are stored as strings, they can't be manipulated by aritHmetic operators (+, - etc.) unless they are changed back to decimal first. This can be done by using **DEC(H$)** which yields the number (in decimal) represented by the hex string, H$.

A quick group of examples :-

```
1) PRINT HEX$(110) gives the answer '6E'
2) 10 DIM H$(10)
   20 H$="ABC"
   30 PRINT DEC(H$)*10
```

RUN will give the answer '27480' which is $ABC_{16}*10_{10}$

If you want to use hex numbers in loops, for example, then you can also do something like :

```
FOR L=$0600 TO $067F
```

which is exactly the same as writing :

```
FOR L=1536 to 1663
```

1536 decimal, or $0600 hexadecimal, represents Page 6, funnily enough. Now you know!

The $ sign before a number tells the computer you are using a hex representation, and it will convert such numbers to decimal before using them.

The above will be blatantly obvious to some of you, but a complete mystery to others, and I apologise for this. However, it is difficult to appear interesting to such a wide audience. Ah well, never mind !

DIV and **MOD** are commands which allow you to do integer division. That is to say, when you divide one integer by another (a/b), you get a quotient (how many times b goes into a) and a remainder. So :

```
10 C=A DIV B
20 D=A MOD B
```

will store the quotient in C, an the remainder in D. What possible use these commands are may not be too obvious, but perhaps a short example will prove useful. If you use :

```
A=(A+1) MOD 10
```

in a loop, say, then A will 'count' from 0 to 9, and then automatically go back to 0 again! If you replace the 10 by X, then A will count from 0 to X-1, and then reset. Why this happens, I'll leave for you to work out. I've used this technique in a couple of my 'colour-cycling' demonstrations.

NUMBER-SPLITTING

Another pair of complementary functions are **FRAC** and **TRUNC**, but these are of use for real numbers (those with possible fractional parts), as opposed to integers. TRUNC(A) will return the whole number, integer compononent of A, whilst

```
IL 1 REM ##########################################
EH 2 REM #    TURBO BASIC TUTORIAL 4    #
PD 3 REM #       by Gordon Cameron      #
MF 4 REM #      for NEW ATARI USER      #
SM 5 REM #          LISTING 1           #
LC 6 REM #       ATARI XL/XE ONLY       #
IR 7 REM ##########################################
NN 8 REM
YH 10 DIM G_S$(200)
KE 20 TO_LOWER=1:TO_UPPER=2:SWAP=3
DL 30 GO# MAIN
HZ 40 ------------------------------
IA 50 ------------------------------
RJ 60 PROC TRANSFORM
LU 70    TRANS_START=ADR(G_S$)
BO 80    TRANS_TOP=TRANS_START+LEN(G_S$)-1
EM 90    FOR TRANS_LOOP=TRANS_START TO TRA
   NS_TOP
NZ 100      PATTERN=PEEK(TRANS_LOOP)
VC 110      IF G_TYPE=1
BW 120        POKE TRANS_LOOP,PATTERN!32
MJ 130      ELSE
AZ 140        IF G_TYPE=2
VE 150          POKE TRANS_LOOP,PATTERN&22
   3
GV 160        ELSE
LH 170          POKE TRANS_LOOP,PATTERN EX
   OR 32
QY 180        ENDIF
SC 190      ENDIF
GW 200    NEXT TRANS_LOOP
VM 210 ENDPROC
OT 220 ------------------------------
OV 230 ------------------------------
WN 240 # MAIN
VS 250 REM SWAP can be replaced by
TQ 260 REM TO_LOWER or TO_UPPER in line
XW 270 REM 250 to give different effects
HH 280 G_TYPE=SWAP
TI 290 ? "K":INPUT G_S$
IP 300 EXEC TRANSFORM
WQ 310 ? G_S$
NW 320 END
```

Listing 1

FRAC(A) returns the other bit - the remaining fraction after the decimal point. e.g.

```
10 A=25.75
20 B=TRUNC(A)
30 C=FRAC(A)
```

will put the value 25 into B, and 0.75 into C.

The last of the new arithmetic operators is the function **RAND**. RAND(N) wll give a pseudo-random number in the range 0-N.

LOGICAL COMMANDS

To round off this time, I'll briefly try and describe what are known as the 'bitwise operators'. Turbo Basic supports three such operators : OR (**!** in Turbo Basic), AND (**&** in TB), and EXCLUSIVE-OR (represented by **EXOR**). These operators 'take' two operands or values, and act upon them, just like +, -, * and /. You can have '100 ! 10', '100 & 10', and '100 EXOR 10', just as you can quite legally have '100 + 10'. Unlike +, -, * and /, however, the so-called logical operators operate on individual bits rather than the whole numbers themselves. I'll elaborate briefly but, again, space dictates how much I can cover.

Every number stored or manipulated in the computer is stored not as a decimal value, as we humans are used to, but as a series of voltage levels, or ONs and OFFs. This can be represented by using another base (not again, I hear you say!!) - Base 2 or binary. In binary, the only characters used are 0 (which corresponds to the OFF in the computer), and 1 (ON). Each memory location can contain any number from 0 to 255 on the 8-bit.

This range can be represented by 8 **B**inary dig**IT**s (BITs), and this 'unit' is known as a BYTE. Hence, each location contains a byte of information. Just out of interest, this is why it is necessary to use 2 bytes to represent the addresses themselves. The numbers 0 to 255 are not sufficient, so we need to use 2 bytes - a high byte and a low byte. This gives us a range of 0 to 65536. The explanation so far is an over-simplified picture, but should convey the basic idea.

If a certain location stores the value 100, this is, in binary:

01100100

$(0*2^7) + (1*2^6) + (1*2^5) + (0*2^4) + (0*2^3) + (1*2^2) + (1*2^1) + (0*2^0)$

The logical operators do a calculation on individual bits, or digits of the binary number, rather than on the numbers themselves. So each of the operators compare the corresponding bits in both operands, and decide whether or not to set the relevant corresponding bit in the result.

The OR operation (**!**) sets (which means 'switches ON' or 'make equal to 1') the result bit if either or both of the corresponding bits in the two operands are 'on' themselves. Good grief, an example is in order!

01100100 (which is 100 in decimal)
OR
11001000 (which is 200 in decimal)
EQUALS
11101100 (which is 236 in decimal)

So, in Turbo Basic, if we write

```
10 A=PEEK(x) (which may be 100)
20 B=PEEK(y) (which may be 200)
```

Then **PRINT (A!B)** will give the result 236.

If you asign values directly to A and B above, make sure that the numbers are between 0 and 255, as these three commands only work on 8 bits, or a byte.

The AND operation (**&**) only sets the result bit if BOTH the operand bits are 'on'.

01100100
AND
11001000
EQUALS
01000000 (which is 64 in decimal)

So, **PRINT (A&B)** will give the result 64 (if A is 100, and B 200).

The EXCLUSIVE-OR (**EXOR**) is the same as OR, except that if the two bits are the same, then the result bit is always 0 (OFF).
So, in the above example, **PRINT (A EXOR B)** will give 172.

WHY USE THE LOGIC COMMANDS?

Confused? In practice, these commands are useful for setting, clearing or toggling bits in a byte. For example, if we want to display only characters in the ASCII range 0-127, then we can do what is known as 'mask-out' the bit representing 2 to the power 8, or 128 - the 'leftmost' or 'most significant' bit in the byte. This way, we can strip characters with an ASCII value of 0-255 down to 0-127. The AND (&) is used generally to clear bits, the OR (!) to set them, and the EXOR to toggle them.

I'm very sorry if I've lost anybody, but this is a subject which really needs an article all of its own to explain. Listing 1 demonstrates the technique by swapping between upper and lower case etc. The only difference between UPPER case letters and LOWER case is that in the latter, an extra bit is set to 1 e.g. 'A' in ASCII is 65, which is 01000001 in binary and 'a' in ASCII is 97, which is 01100001 in binary. The ONLY difference is the third bit from the left which is 'on' in lower case letters, but 'off' in upper case. It is on this basis that Listing 1 works.

ODDS & ENDS

I'll end on a hopefully understandable note, by describing a command present on the 'ZX Spectrum' (aargh) amongst other machines - **INKEY$**. This function return the empty string ("") until you press a key, at which point it returns the key you pressed. So, to wait until someone presses a key, you could write

```
   WHILE (INKEY$=""):WEND
or REPEAT:UNTIL (INKEY$<>"")
```

To find out which key has been pressed, try the following example :

```
10 DIM K$(1)
20 DO
30 K$=INKEY$
40 IF (K$<>"") THEN PRINT K$;
50 LOOP
```

FINISHING OFF

Well, that about wraps things up for another month. A bit of a mish-mash, but hopefully normal service will be resumed next time, when I hope to cover some more Turbo Basic commands, as well as answering some more questions. Feel free to write to me, especially if you found anything hard to follow. As ever, comments, suggestions and hints will be gratefully received. Let me know what you'd like me to cover. Anyway, bye for now.

Write to me c/o 13 Muir Bank, Scone, Perthshire, PH2 6SZ, SCOTLAND.

TURBO BASIC TUTORIAL Listing 2

```
IL 1 REM ##########################################
EN 2 REM #   TURBO BASIC TUTORIAL 4   #
PD 3 REM #      by Gordon Cameron       #
MF 4 REM #     for NEW ATARI USER       #
TL 5 REM #          LISTING 2           #
LC 6 REM #       ATARI XL/XE ONLY       #
IR 7 REM ##########################################
NN 8 REM
DJ 10 GO# MAIN
HK 20 ---------------------------------
HY 30 ---------------------------------
TQ 40 PROC SETUP
XD 50   ? "K":POSITION 8,8:? "GRAPHICS DE
   MO":POSITION 10,10:? "BY G.CAMERON"
AV 60   POSITION 12,12:? "PLEASE WAIT":
   POSITION 14,14:? "( APPROX. 25 SECS )"
PL 70   GAP=2
SL 80   NTE=1
WR 90   DIM MYX(360),MYY(360)
KB 100   DIM MYX2(360),MYY2(360)
WU 110   DIM ASSIGN(7,7)
PW 120   DEG
LY 130   FOR X=0 TO 360 STEP GAP
QT 140     MYX(X)=SIN(X)*COS(X)*30+40
YW 150     MYY(X)=SIN(X)*75+90
PB 160     MYX2(X)=COS(X)*30+40
GD 170     MYY2(X)=SIN(X)*COS(X)*75+90
HJ 180   NEXT X
QN 190   FOR LOOP=1 TO 7
RH 200     READ X
IN 210     ASSIGN(1,LOOP)=X
ZP 220   NEXT LOOP
QS 230   FOR LOOP=2 TO 7
AY 240     FOR LOOP2=1 TO 7
YM 250       TEMP=ASSIGN(LOOP-1,LOOP2)
EI 260       ASSIGN(LOOP,LOOP2)=(TEMP+2)
   MOD 47+33*(TEMP=46)
AF 270     NEXT LOOP2
AB 280   NEXT LOOP
WC 290 ENDPROC
OQ 300 ---------------------------------
OS 310 ---------------------------------
UP 320 PROC ZAP
VQ 330   C=(C+1) MOD 9+2*(C=8)
VT 340 ENDPROC
PA 350 ---------------------------------
PC 360 ---------------------------------
WB 370 PROC ANIMATE
SM 380   POKE 706,ASSIGN(NTE,1)
UD 390   POKE 707,ASSIGN(NTE,2)
BU 400   SETCOLOR 0,2,ASSIGN(NTE,3)-32
DR 410   SETCOLOR 1,2,ASSIGN(NTE,4)-32
FO 420   SETCOLOR 2,2,ASSIGN(NTE,5)-32
HL 430   SETCOLOR 3,2,ASSIGN(NTE,6)-32
JI 440   SETCOLOR 4,2,ASSIGN(NTE,7)-32
OY 450   NTE=(NTE+1) MOD 8+(NTE=7)
VY 460 ENDPROC
PF 470 ---------------------------------
PH 480 ---------------------------------
ZY 490 PROC CIRCLES
FW 500   C=2
LG 510   FOR LOOP=RDIUS TO 1 STEP -INC
HL 520     COLOR C
UR 530     CIRCLE X,Y,LOOP,LOOP*VSCALE
FO 540     EXEC ZAP
XE 550     EXEC ANIMATE
AA 560   NEXT LOOP
WB 570 ENDPROC
PI 580 ---------------------------------
PK 590 ---------------------------------
KX 600 PROC PLOT
EC 610   PLOT X-1,Y-3:DRAWTO X+1,Y-3
DW 620   PLOT X-2,Y-2:DRAWTO X+2,Y-2
ZP 630   FOR LOOP=-1 TO 1
FS 640     PLOT X-3,Y+LOOP:DRAWTO X+3,Y+L
   OOP
ZZ 650   NEXT LOOP
AK 660   PLOT X-2,Y+2:DRAWTO X+2,Y+2
AU 670   PLOT X-1,Y+3:DRAWTO X+1,Y+3
WE 680 ENDPROC
PL 690 ---------------------------------
OU 700 ---------------------------------
LL 710 PROC TEST
GC 720   C=2
MA 730   GRAPHICS 10
JK 740   COLOR C:TEXT 0,0," TURBO"
YQ 750   EXEC ZAP:EXEC ZAP:EXEC ZAP
SN 760   COLOR C:TEXT 0,182,"    BASIC"
UK 770   FOR X=1 TO 40
HP 780     COLOR C:PLOT X,X+10
OZ 790     DRAWTO 80-X,X+10
WU 800     DRAWTO 80-X,180-X
HQ 810     DRAWTO X,180-X
FY 820     DRAWTO X,X+10
YK 830     FCOLOR C
AB 840     PAINT X+3,X+10
FT 850     EXEC ZAP
XJ 860     EXEC ANIMATE
HO 870   NEXT X
YL 880   X=24:Y=94:RDIUS=10:VSCALE=1:INC=
   1
WZ 890   EXEC CIRCLES
HC 900   X=55
WK 910   EXEC CIRCLES
CT 920   X=40:Y=136:RDIUS=14
WO 930   EXEC CIRCLES
HJ 940   C=5
HI 950   FOR L=0 TO 360 STEP GAP
HX 960     COLOR C
VV 970     X=TRUNC(MYX(L)):Y=TRUNC(MYY(L)
   )
JH 980     EXEC PLOT
GC 990     EXEC ZAP
QI 1000     EXEC ANIMATE
CV 1010   NEXT L
US 1020   FOR L=0 TO 360 STEP GAP
NO 1030     COLOR C
BY 1040     X=TRUNC(MYX2(L)):Y=TRUNC(MYY2
   (L))
VG 1050     EXEC PLOT
OW 1060     EXEC ZAP
RD 1070     EXEC ANIMATE
DQ 1080   NEXT L
ZD 1090 ENDPROC
XE 1100 ---------------------------------
XH 1110 ---------------------------------
SY 1120 # MAIN
KI 1130 EXEC SETUP
PR 1140 EXEC TEST
KH 1150 DO
JH 1160   EXEC ANIMATE
MJ 1170 LOOP
YC 1180 ---------------------------------
YF 1190 ---------------------------------
QJ 1200 DATA 34,36,38,40,42,44,46
```

MOUSE PARTY

The dinner dance is over and leftovers litter the floor. Now it's party time for the mice - and boy, are they rough! You'll have to battle just to get a morsel. Don't have too many cocktails though, they'll make you drunk. The bottles, however, are safe enough, they just get in the way.

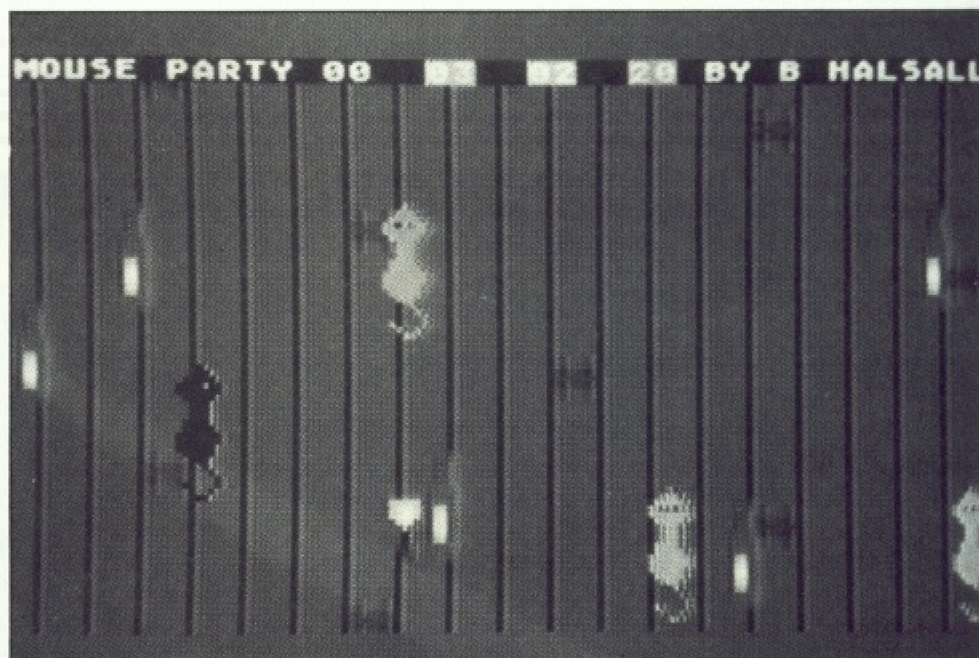
During the course of the mouse party nasty salmonella and listeria bacteria will increase and eventually some items could give you food poisoning - with fatal consequences. Keep your fingers crossed!

The game ends when all mice are gone and the winner is the one that consumes the most. The scores are displayed in player order from left to right at the top of the screen in the same colours as the mice.

On loading, the game goes straight into demonstration mode. Press the button on joystick 1 or 2 respectively to start a 1 or 2 player game. Use your joystick to move your mouse around the screen unless it is drunk, in which case you'll have to wait a few seconds until it sobers up! The computer controls the remaining mice not selected.

On earlier computers with 4 joystick ports up to 4 people can play once 4 joystick mode has been enabled by pressing START and SELECT together when the game is in demonstration mode. Once set, 4 player mode is enabled until the computer is turned off.

Press the appropriate joystick button to select the number of players each game. If you prefer to take the easy option just sit back and let the computer control all 4 in demonstration mode which comes into play about 2 minutes after each game ends. Just enough time to pay out the winnings and place your next bets!



A new action game from Bill Halsall for up to four players

TYPING IT IN

Both cassette and disk users should type in Listing 1, SAVE or CSAVE a copy, then RUN the program. The program will check each line of data and inform you of any errors. Correct any errors and RUN the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a boot tape or binary disk file.

Cassette users should load the boot tape created by firstly removing all cartridges and then turning on the computer while holding down the START key (XL and XE owners should hold down OPTION as well). Press RETURN and the tape will load and run automatically.

Disk users should type in Listing 2 and save it on the same disk as the binary file created by Listing 1. RUN the Listing 2 program with the disk in the drive and the game will load and run automatically.

A special note for disk users - if any other programs have been used prior to Listing 2 being loaded it is recommended that the computer be turned off and on again before the program is run to ensure that the game isn't corrupted by any data left in memory.

Mouse Party can be played by 1 or 2 players on the XL or XE but owners of the Atari 400 or 800 computers can have up to four players at once

MOUSE PARTY

```
WO 1 REM ******************************
LB 2 REM *         MOUSE PARTY         *
XS 3 REM *              by             *
TA 4 REM *         Bill  Halsall       *
ZE 5 REM *                             *
SS 6 REM * --------------------------- *
HC 7 REM * NEW ATARI USER - AUGUST 89 *
WV 8 REM ******************************
BB 40 REM
BD 41 REM
BB 42 REM BOOT TAPE/OBJ CODE FILE MAKER
          BASED ON PROGRAM FROM ANALOG
BH 43 REM
SR 44 DIM DAT$(100),HEX(22):RESTORE 46:FO
   R X=0 TO 22:READ N:HEX(X)=N:NEXT X:PAS
   S=0:TOTAL=0:TRAP 62:? "CHECKING DATA"
PA 45 LINE=99:RESTORE 100
EL 46 DATA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,0,
   0,0,10,11,12,13,14,15
BW 48 LINE=LINE+1:? LINE:READ DAT$:IF LEN
   (DAT$)<>90 THEN 76
BL 50 DATLIN=PEEK(183)+PEEK(184)*256:IF D
   ATLIN<>LINE THEN ? "MISSING";CHR$(253)
   :END
MA 52 FOR X=1 TO 89 STEP 2:D1=ASC(DAT$(X,
   X))-48:D2=ASC(DAT$(X+1,X+1))-48:BYTE=H
   EX(D1)*16+HEX(D2)
GR 54 IF PASS THEN PUT #1,BYTE:NEXT X:REA
   D CHKSUM:GOTO 48
BO 56 TOTAL=TOTAL+BYTE:IF TOTAL>999 THEN
   TOTAL=TOTAL-1000
TS 58 NEXT X:READ CHKSUM:IF TOTAL<>CHKSUM
    THEN 76
VQ 60 GOTO 48
TQ 62 IF PEEK(195)<>6 THEN ? "ERROR ";PEE
   K(195);CHR$(253):END
AJ 64 IF PASS THEN RESTORE 90:FOR X=1 TO
   37:READ A:PUT #1,A:NEXT X:CLOSE #1:END
SX 66 ? "(D)ISK OR (T)APE":GOSUB 80:IF K=
   ASC("D") THEN 70
RD 68 ? "READY CASSETTE AND PRESS RETURN"
   :OPEN #1,8,128,"C:":GOTO 74
ND 70 ? "READY DISK AND PRESS RETURN":GOS
   UB 80:IF K<>155 THEN 70
RA 72 OPEN #1,8,0,"D:MOUSE.OBJ"
HW 74 PASS=1:LINE=99:RESTORE 100:TRAP 62:
   GOTO 48
PT 76 ? "BAD DATA";CHR$(253):END
GO 80 CLOSE #1:OPEN #1,4,0,"K:":GET #1,K:
   CLOSE #1:RETURN
BK 90 DATA 61,33,174,248,38,189,131,2,240
   ,9,202,208,248,165,19,201,25,208,239,1
   34,207,189,131,2,240,251,76,90,38,2,0
OZ 92 DATA 0,0,0,0,0,0
AL 100 DATA 000E00202720A9008D2F02A93C8D0
   2D3A9008DE702850EA9388DE802850FA928850
   AA920850B18604C5A260003,521
YB 101 DATA 2AAA5555151500C0A8AA555554540
   000051619361F0500005465996BFD540000AAA
   69AA99AAA0000A04080A26A,340
BN 102 DATA AA000F35D5F53F0F0000F05C575FF
   CF0003A0E03000000000003ABACB0C0C0C0F03
   C3C3C3C3CFFFFFFFFFEBEBEB,750
BM 103 DATA EBFFFF3C0303030303030300300
   0FF0030000000333003FF0333030300000000000
   81C3E6B7F3E1C1C1C3C3E7F,29
ZT 104 DATA 7F7E3E1C04020121120C000000000
   000081C2A1C080D184C180C1A284004120C000
   0000000000000000707070,213
SA 105 DATA 30428030E50039A52525252525252
   525250541DE20A227A9009D8030CA10FAA20BB
   D25219D8030BD31219D9C30,179
VH 106 DATA CA10F1A9FFA2039D123E9D923E9D1
   23F9D923FCA10F160002D2F353325003021323
   439223900220028212C3321,787
JS 107 DATA 2C2CA20BBD49219D9C30CA10F7600
   00027212D25002F36253200488A48A6B8B5B09
   D00D0B5B19D01D0E6B8E6B8,513
FC 108 DATA 68AA6840A5BBF038C6BEC6C0A5C02
   90785C00A8D05D4C90ED026ADE62038E9288DE
   620B003CEE720ADE720C934,444
UA 109 DATA D011ADE620C900D00AA9398DE720A
   9008DE620A5C1F0194AAABD0C228D00D269A28
   D01D2C6C1D008A9008D01D2,925
OL 110 DATA 8D00D2A6C2F00DBD18228D04D2D00
   38D05D2C6C2A6C3F00DBD23228D06D2D0038D0
   7D2C6C3A90085B8A9648D00,537
EY 111 DATA D0A9748D01D0A9848D02D0A9948D0
   3D0A9558D0002A9218D01024C62E4000102030
   304040505060708000001420,954
JO 112 DATA 3C5064788CA0B4000064786478647
   864A23186CCA90085CBA8A90091CBC8A90D91C
   898293FC93FD00A88A90E91,225
PY 113 DATA CBC8A90F91CBC8D0E3E6CCE8E036D
   0D5A93185CCAD0AD22903AA20A02285CBA000A
   98B91CBA028A98C91CBE8E0,13
NT 114 DATA 05D0EAE6CCA5CCC936D0DCA23186C
   CA93685CEA00084CB84CDB1CB91CDC8D0F9E6C
   CE6CEE8E036D0F060AD0AD2,593
EN 115 DATA 38E92890F829FC090160A9008D2F0
   2202C2220F620A93C8D07D48DF402A200BD00E
   09D003CBD00E19D003DE8D0,332
FW 116 DATA F1BD2B209D083CE8E078D0F5A9028
   D1DD0A9018D6F02A9008D08D2A9038D0FD2A9D
   E8D3002A9208D3102A208BD,464
JC 117 DATA 19239DC002CA10F7A92A8D2F02A06
   CA221A907205CE4A9C08D0ED460008646B6100
   C00B214A5BE10034C2A2360,799
NH 118 DATA A5C485CB85CDA5C585CC20A323A4C
   6A90D91CB91CDC8A90091CB91CDADE72085CCA
   DE62038E92885CB85CD8002,461
OF 119 DATA C6CC20A32320B423A8B1CBC90DD0F
   6C8B1CBD0F188A5CB85C4A5CC85C584C620C42
   385C791CB91CD186901C891,215
CM 120 DATA CB91CDA96685BEE6BDA5BDC5C9D00
   4A90185CAA5CAF007AD0AD2290185C860A5CC3
   8E936B005693B85CE60A5CC,589
NP 121 DATA 85CE60AD0AD2291F38E90790F6186
   907090160AD0AD2290F38E90690F6090160A20
   0A9109D8E309D8D30E8E8E8,393
JV 122 DATA E8E010D0F260A5BC0A0AAAE8A002F
   E8D308D8D30C91AD009A9109D8D30CA88D0ED6
   0A9A385CBA92085CC4C1324,360
IN 123 DATA A9BE85CBA92085CCA6BCB5B4187D2
   E2485CDBD322485CEA000B1CB91CDC8C020D0F
   7600080000803E3E3F3FA200,24
IY 124 DATA 8A95B09D00069D0030E8E01FD0F32
   0882420AD2220D123204623A200BD802495B0B
   D842495B4E8E004D0F1A900,253
DI 125 DATA 85BAA5BA85BC200024E6BAA5BAC90
   4D0F1AD0AD2291F695585C960409068883E3E2
   E48A900AA9D003E9D803E9D,618
VD- 126 DATA 003F9D003FE810F160A6BCBD14061
   D04061D0006D028BD7802290 1D00320D124BD7
   8022902D00320DD24BD7802,511
YQ 127 DATA 2904D00320E924BD78022908D0032
   0F22460B5B4C924F005D6B420002460B5B4C95
   2F005F6B420002460B5B0C9,483
YF 128 DATA 34F002D6B060B5B0C9C8F002F6B06
   0A6BCBD14061D04061D0006D024A5147D30252
   960F00620D1244C1A2520DD,115
GK 129 DATA 24A6BCA5C60A0A693038F5B0F0059
   00420F224604CE92400204060A6BCBD1406D00
   EA000BD0CD0186AB006C8C0,918
OV 130 DATA 04D0F760B5B0C9C8F00438F9B0009
   D080649FF990806A91785C1AD0AD2290F69089
   D0006AD0AD2290F69089900,580
ZQ 131 DATA 0660A6BCBD1406D024BD04D0290BF
   01D2908D01AA9A88D05D2A90A85C220E423A5C
   8D029A5C7C909F035202A23,584
NV 132 DATA 60A6BCA9A88D07D2A9109D0006A90
   885C3B5B0290F186906290869FC9D080660A6B
   CA9289D1006A9019D140620,930
II 133 DATA 0B244C2A23A6BCA9FF9D0406A9178
   5C14C2A23A6BCBD1406D020BD0406F01B20DD2
   4A5142901D003DE0406BD00,169
EQ 134 DATA 06D00AB5B03003 4CE92420F22460A
   6BCBD1006F023A9868D03D2AD0AD2290F8D02D
   29D12D0DE1006BD1006D00B,908
JN 135 DATA 8D02D28D03D2A9029D1406BD1406C
   902D0CEFE140685CBA93085CC4C1324A6BCBD0
   006F0BBDE0006BD08061003,528
UJ 136 DATA 4CE9244CF224203624A9018D1C028
   5BBA90085BC2022232034252075252008262 0E
   025204526A5BC38E5CF9006,413
RV 137 DATA 20FB244C8E26209B24A900854DE6B
   CA5BCC904D0D58D1ED0AD1C02D0F8A5CFD018A
   EF826BD8302F021CAD0F8AD,518
CB 138 DATA 1FD0C904D0068DF8264CCB26A203B
   D1406C903D005CA10F630034C5D26A90085BB8
   513AA9D00D2E8E008D0F820,569
```

●

```
PU 20 REM LOAD AND RUN ROUTINE FOR DISK
           VERSION OF MOUSE PARTY
PD 24 OPEN #1,4,0,"D:MOUSE.OBJ"
ON 26 POKE 850,7:POKE 852,0:POKE 853,32:P
   OKE 856,255:POKE 857,255
TB 28 X=USR(ADR("hhh□LV□"),16)
BO 30 CLOSE #1:X=USR(8232)
```

●

Listing 2

Mark Hutchinson's

RANDOM NOTES

The telephone rang yesterday and the voice of the Lord and Master said, "Remember that article you were to write for the magazine next month? Well, I need it now, get going!". It would seem that the last ATARI show came at a very bad time for production of the magazine which, by the way, for me will always be PAGE 6! The short notice threw me into a panic about what to write so I looked over some past issues for inspiration and found some interesting items.

For instance, I have written in the past how ATARI give very little backing to their computers, especially the 8-bit, and how a national user group would be beneficial and even better if they had their own 'show'. Lo and behold, the seeds seem to have been sown at the Alternative Micro Show in London and it may well grow when the next Alternative Micro Show is held in Stafford in November. All those people who complain about their lonely XL's, et al., have no excuse for not turning up - not an ST in sight, let's just hope that there is enough to interest Atarians! The outstanding surprise at the 8-bit show was just how much support is available for machines that stopped production years ago. They continue on regardless because their users are sensible and stick together. The ATARI 8-bits are alive and kicking but which will die out first the computer or the user?

Computerhouse are importing software from America, of what vintage I do not know, but again I have always advocated this in the magazine and elsewhere and I am glad to see it happen. I just hope that they import utilities as much as games. Maybe you think that it is not such a good idea to import old programs. Well, maybe some of the 'new' programs are not so new. Remember not so long ago ATARI bundled 'Home Filing Manager' with their 8-bit computers? Could this be the very same program that was advertised in ANALOG magazine in issue 5 way back in September 1982? For those who remember ANALOG, do you remember that it stood for ATARI Newsletter And Lots Of Games?

I bet you think that the interactive video disk from Microdeal on the ST a couple of years back was an innovation and that only the ST could handle it. Wrong! New Media-Graphics Corp. had a system called DiskMaster 5000 incorporating a Pioneer VP-1000 laser disk player, a Z80 controlled interface, 16K memory, a floppy drive, ATARI Basic and all necessary cabling and documentation for only $3000 - not a bad price for an add-on to the old 400 in November 1982! And you still think that there was no support for our 8-bits?
Whatever happened to the much vaunted ATARI CD-ROM? Will it come out of mothballs for the umpteenth time and be displayed as a stand filler at the next show? Do they realise that heavy competition is now available? Hitachi Europe have introduced a re-writable, 5.25", optical disk drive with 644Mb (yes, Megabytes) of user memory with an access time of 75ms, a burst data transfer rate of 925K/s. The drive's formatter/controller provides a SCSI and a burst data of 1.5M/s. The only problem will be the price.

How many of our readers remember APX? Years ago ATARI set up the ATARI Program Exchange where people like you and me could write software and send it into ATARI for vetting. If it was good enough, and at that time the standard was not too high, ATARI would market the program under the APX label. I have still seen some APX items in the shops at one or two pounds instead of the twenty pounds they originally cost. Some are mediocre, some are good. You pays your money, etc. If some of the retailers would contact PAGE 6 and let us know what items are available, what they plan for the future, how they cater for users etc., we would certainly like to publish a column about program availability - but not in the form of free advertising for the retailer, this is a two way street!

That is enough for now about America. What about early issues of PAGE 6? What could be resurrected from December 1982, the first edition, that might still be relevant today? Strangely enough, nothing. Well, the magazine was only starting off and very little advertising was available. However, a listing from Stan Ockers, the 'wizard' of ATARI Basic programming was given and I can see no reason why it cannot be published again.
As an aside, the Editor made this comment in the first issue. Type GRAPHICS 3 in direct mode and press RETURN. Press the TAB key about 25 times and then press RETURN. Now try hitting various different keys. Well, does it still work on the new machines?

An interesting item from Issue 2 was the Victagraph Plot Window, an instrument to aid drawing in the GRAPHICS modes, now long gone, whilst Issue three gave us three cassette based programs from T&G Software and 'Up, Up And Away' from Pulsar. So where are they now? If you are the writer or you are holding the copyright of such programs, please contact us at the magazine right away, we might be able to make these programs available again.

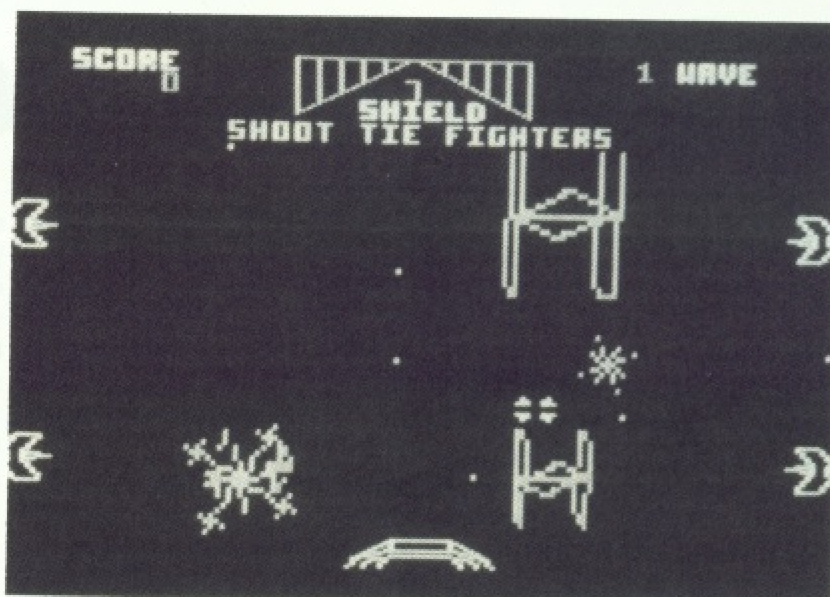
Whenever I have asked for comments in this column I have received letters from various places around the world. Unfortunately all have asked totally different questions but it just goes to show the wide interests of ATARI users, however one point does crop up more often than others. Peter Boulter's letter is a typical example. He asks the question, "Will ATARI ever own up to the fact that the 8-bit machines are more than just games machines?". NEVER! ATARI have still not learnt the lesson. They flaunted the power of the ST then shot themselves in the foot by setting up the summer games deal, how crazy can you get? Jack Tramiel gave us promises about power, price, killing rumours dead and availability of products. When was the last time you heard of any of the Tramiels?

I must apologise to the people who wrote in asking about the XF551 drive. At that time I did not know that the problems were due to lack of support from DOS. Come back Bill Wilkinson! Also to Paul Clark, Linda and some others who did not ask questions but would like some correspondence - I will get round to it soon.

So, that is it for another issue. Please keep writing and don't forget, an SAE gets you a direct reply. In 1982 users would normally have ended a letter by saying 'keep hacking'. This was when we programmed for fun and experimentation, now it means something a lot worse. How times change. See you next time. Don't forget to write, your letter might be the one to give me the inspiration for the next column.

The adddress is
1, Hollymount, Erinvale, Finaghy, Belfast BT10 0GL

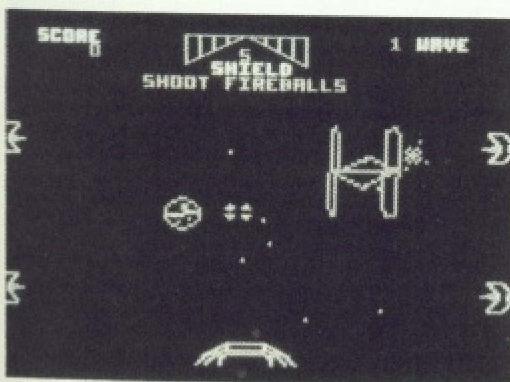
STAR WARS



THE FORCE COMES TO ATARI

In early 1987, Domark announced they had signed an agreement with Atari Inc. (the coin-op company) for the rights to publish home computer versions of the arcade smash hit STAR WARS. An 8-bit Atari game was promised by the end of the year, but Christmas came and went without any further news from the company. Eventually, Domark admitted they'd had second thoughts and it looked as though, once again, we were going to miss out on a major piece of software. Then came the very welcome news that Zeppelin Games had finished work on their own Star Wars conversion for the Atari, and had passed it on to Domark for the marketing. And this is it!

Although the game is supplied in the attractive 'standard' Domark packaging, you can basically forget the bulk of what is printed on the inlay card as it was produced before the Zeppelin game was anticipated. The blurb contains references to 'stirring music' and speech synthesis - neither of which apply in this case - and loading instructions, in four languages, are given for five different machine formats - but not the 8-bit Atari! Fortunately, the lack of relevant info isn't too much of a disadvantage as author Ian Copeland has included adequate playing hints within the game itself. It's just a pity they seem to disappear from view before you get a chance to read them! Incidentally, music on the title page is quite good, but hardly stirring!



Star Wars is, of course, a shoot 'em up featuring vector graphics and a variety of battle sequences. Your aim, as Luke Skywalker, is to defeat Darth Vader's Empire by destroying the very Death Star he commands. Your view is from the cockpit of an X-Wing fighter, looking out across a star scattered blankness - not unlike the scene in Star Raiders. At either side of the screen there are two laser cannons and in the centre, a small cursor which is used to line up enemy craft before annihilating them with laser fire. In the first sequence, Luke is approaching the Death Star and must avoid the welcoming party of Tie Fighters to survive. Oncoming fireballs must be eliminated, otherwise they'll reduce the strength of the X-Wing's shielding. The ship can only take eight hits before it explodes, and the game ends.

After reaching the surface of the Death Star, you're confronted by a series of defensive towers, and must shoot down the turrets for additional points. As before, fireballs are the major cause for concern. Finally, you dive into a deep trench in search of the ultimate target - the exhaust port. Blasting the port will destroy the Death Star, but before you can reach it there's a multitude of stretch barriers and missile emplacements to cross your path and then explode into a spiral of pieces as you blast them from the sky. Sound, I'm afraid, is not really up to the standard I'd expect from Zeppelin, and the ending - a large 'Game Over' written across the display, although sometimes unrecognisable due to other drawings on the screen - is another invitation

Reviewed by Paul Rixon

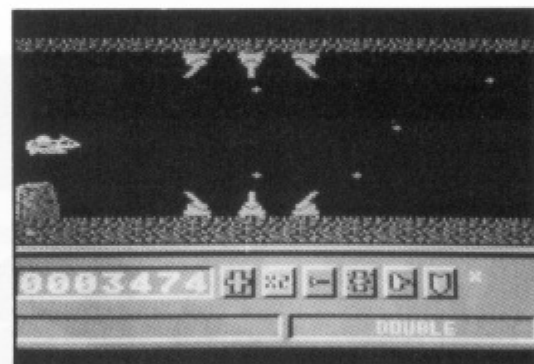
negotiate. Not only must you fire at the installations but also steer the ship around the obstacles. There are many levels to be explored and the initial ones don't include all of the stages mentioned above. That's a good job, as you need to be quite expert before tackling many of the later scenes. From the title page you can choose to begin on wave one, three or five - corresponding to easy, medium or hard difficulty levels.

On the face of it, Star Wars is - and always has been - an essentially simple concept. Its strength lies in the fast paced, action packed nature of gameplay. Zeppelin have made a good job of the graphics, as you can see from the screen shots. The trench scenes in particular are very nicely done, and the Tie Fighters well animated as they approach from the distance, for criticism.

Strangely, Zeppelin's game isn't the first Star Wars to appear on the Atari. A similar conversion was published on ROM cartridge by Parker Brothers(?) many years ago, although I've a feeling it belongs to that category of games that 'they never released' in the UK. But, second time around it's a wholly British creation from a company who have shown how games can and should be produced on the Atari. If only the others would follow! This is definitely not a game to be missed.

Title:	**STAR WARS**
Publisher:	**Domark**
Price:	**£12.99 on disk** **£9.99 on cassette**
Players:	**1**
Control:	**Joystick**

A NEW LIFE IN THE STARS



Here's yet another shoot 'em up from a company who have brought us great games such as Red Max and Grand Prix Simulator. Programmed by Maureen Copeland, TRANSMUTER is a horizontally scrolling 'Nemesis' clone with plenty of action to keep those dedicated alien zappers occupied!

The story is set far into the future, at a time when the sun has decayed into an unsustaining giant. Man has adapted by burrowing deeper and deeper into the Earth's surface, using the heat from its core to survive and constructing multiple layers of deadly machinery to guard his retreat. Finally, the last few descendants have assembled a space craft and deserted the dying planet for a new life in the stars - the end of the story? Not quite! Unfortunately, the machines left behind in the abandoned tunnels have been known to trap commuters on their travels through the galaxy. As a service to space-kind, you've (been) volunteered to return to the Earth and eradicate these dangerous devices.

Your transport for the mission is described as a Total Aggression Fighting Machine. Not your every-day Renault 5! - this beast runs on a Nucleonic Transmuter - a gadget for converting raw energy into various pre-programmed objects. Energy is created when molecular breakdown occurs or, in other words, when you blast something! What this means in layman's terms is that if you score enough hits, you can pick up added goodies for your ship such as laser fire, extra speed and a boost to your fire power. Once you have all the extras, the game becomes much easier to complete, but you must be careful to avoid all adversaries as you can't retain these abilities from one life to the next.

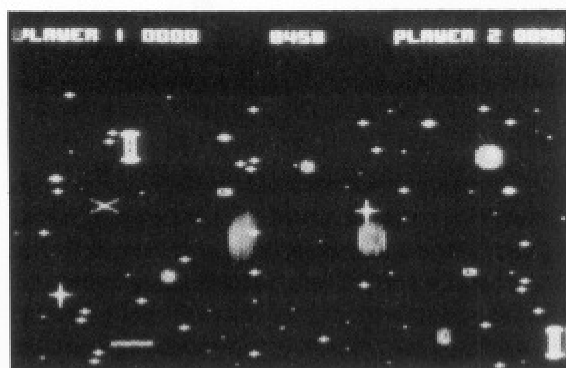
Visual delights include a large score panel in the lower screen portion with an inventory of accumulated add-ons, with above, a variety of scrolling landscapes and animated nasties forming the basis for the game itself. After the initial shoot 'em up stage there's a bonus round where you are attacked by waves of spherical objects. If you've managed to obtain double fire power these will pose no problem, but no amount of weaponry will aid in the following sequence where you have to negotiate a jagged vector graphics section of passageways. Scrolling is rather slow and this becomes a bit frustrating if you lose a life - but is a good incentive not to do so very often!

Transmuter is a perfectly playable game but with such a huge amount of almost identical software on the market, I can't help feeling a little unimpressed by the familiarity of it all. Not to worry, as Codemasters apparently have some new ones lined up for the coming months, and if these are up to the standards set by previous releases then they're certainly going to be worth looking out for. Watch this space!

Title:	**TRANSMUTER**
Publisher:	**Codemasters**
Price:	**£2.99 on cassette**
Players:	**1**
Control:	**Joystick**

Reviewed by Paul Rixon

KEEP IT SIMPLE ... MAKE IT GOOD



In the beginning, there was Pong. Then there was Atari - and now there's VIDEO CLASSICS, an attempt by Firebird to re-create the excitement of that very first arcade game. The company are offering no fewer than six different challenges - Tennis, Football, Squash, Solo Squash, Four-bat Blip and Asterbliperoids - in a single package. The games are selected from a cleverly animated options menu, so you only have to suffer the loading sequence once per session and you can return to it at any time using Reset. The computer is a fair opponent, being neither too easy nor impossible to defeat. A two player option is also provided.

Tennis needs little explanation - it's a case of two moving bats, a ball and a scrolling background in various shades of green. Ten points and the next serve are awarded to a player when his opponent misses a return shot - that's about all there is to it! Football is reasonably similar to Tennis (believe it or not!) except that each player manipulates two bats, one for moving across half of the screen as before, and the other travelling vertically over an open goal-mouth.

Squash, as you might expect, involves both players at the same end of the arena. This time you can move just about anywhere within the screen boundaries but quick reactions and precise judgement are essential if you venture too near to the back wall. Solo Squash is a bit mysterious - it appears that points are earned when you MISS the ball and it bounces out of play. If you miss frequently enough, you even get an opportunity to record your achievement in the highscore table! I'm quite an expert at this one!!

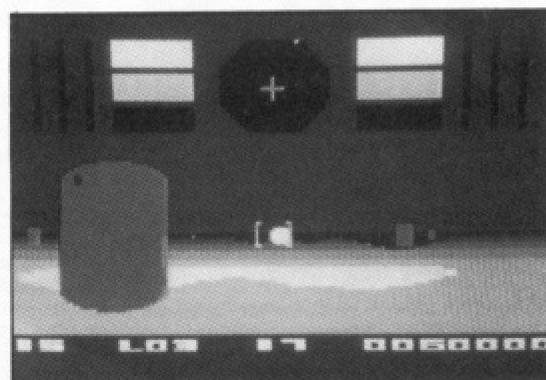
The remaining two games are slightly more original. In Four-bat Blip each player controls one bat on a vertical edge of the screen and a second on a horizontal. There are no walls at all on this occasion, so both players need good hand-to-eye co-ordination in order to keep the ball in play. Finally, Asterbliperoids is an interesting variation on the Tennis theme. The green backdrop is replaced by a scrolling starscape with chunks of cosmic debris strewn across the playfield. Consequently, the ball can rebound towards you when you least expect it, making successful play as much a case of luck as of skill.

Sound throughout consists entirely of a musical masterpiece which is similar in style to the popular Rob Hubbard compositions found in software such as Warhawk and Jet Set Willy. Even ignoring the great music, I have to admit that this is one of the few games that has got me completely hooked! - okay, it's INCREDIBLY simple in design but tremendously addictive and thus a giveaway at the asking price. Once you have Video Classics you may not need another game for some time and you might well find yourself addicted to one of the simplest games to have been released in recent years!-

Title:	**VIDEO CLASSICS**
Publisher:	**Silverbird**
Price:	**£1.99 on cassette**
Players:	**1/2**
Control:	**Joystick**

Reviewed by Paul Rixon

RETURN OF A CLASSIC



Atlantis are making no secret of the fact that ENCOUNTER isn't a new game but a re-release of the Paul Woakes classic that launched Novagen - who have since turned their attentions over to the ST - to fame and fortune. Long term PAGE 6 readers may remember a review by the Editor which appeared in issue ten, over five years ago!

Encounter owes much to an old Atari arcade hit called Battlezone, in which the player took control of the last remaining combat tank on Earth. There are no tanks in Encounter, but the underlying principle - and associated enjoyment - remains the same.

From the forward command window of a small probe vehicle, you observe a vast green plain littered with mysterious cylindrical obelisks. Nudge forward on the joystick and you move into the landscape, the cylinders growing in size until you eventually pass or hit them. Swivel sideways and the whole display scrolls accordingly. Shift into reverse and the cylinders shrink into the distance while new ones appear from behind until suddenly, a huge thud - as you back into an unseen obstacle. Underneath the window you'll find a large, easy-to-read instrument panel, with a radar screen and three coloured warning lights. A small white dot appears on the radar and the yellow light alerts you of impending danger. The dot alters position as you head towards a brightly coloured alien saucer, line it up in your sights and blast it into a spectacular shower of pieces. One down, ten more to go!

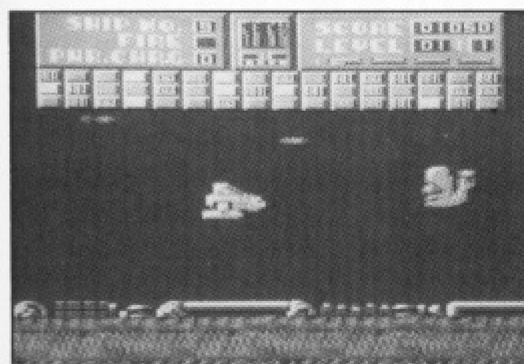
This time, you see a blue light. As you head towards the enemy, you're attacked by a stream of spherical missiles. You dive behind a cylinder and the missiles are deflected into the distance. Several alien encounters later, your senses are awakened by a flashing red indicator and low droning noise as an enemy homing missile locks onto your position. You slam the probe into reverse in a desperate attempt to gain vital seconds. There's no escaping this one, you must hit the missile before it gets you! With a feeling of some relief, the last alien craft is disabled and a strange black void appears in the vicinity. After locating and entering the void, you're propelled at incredible speed through a hail of oncoming meteorites. Somehow, you manage to avoid them. A new level begins - new scenery, new aliens ...

The main talking point of Encounter was, and still is, the amazing three dimensional visual display. However, there is much, much more to the game than the super graphics - every aspect has been professionally created by a man who has Atari programming down to a fine art. Encounter was previously marketed at £9.95, but now that Atlantis have cut this by two thirds there can be no excuse for not obtaining this remarkable piece of British software. You certainly won't regret it.

Title:	**ENCOUNTER**
Publisher:	**Atlantis Software**
Price:	**£2.99**
Players:	**1**
Control:	**Joystick**

Reviewed by Paul Rixon

A SUPERB SHOOTING SCROLLER



British Telecom don't receive a lot of praise for their activities in the comm's field but, when it comes to producing computer software, no one can deny that the BT label can usually be regarded as a sure guarantee that something worth having lies within the plastic box. THE EXTIRPATOR, one of the more recent games to join the Silverbird collection, is certainly no exception to this rule. In fact, it's one of the best scrolling shoot 'em ups currently on the market!

The plot is fairly typical for a game of this nature - as fearless commander of the elite Eagle X-Ray fighter squadron, your dangerous mission is to liberate a planet from the evil clutches of the occupying 'Llax IV' forces. To accomplish the task, you must battle through a series of heavily guarded- sectors, avoiding or, preferably, eliminating the hoards of alien attack craft as you go. At the end of every sector lies a huge, defensive barrier. This must be destroyed before access to any subsequent screen can be gained.

There are three sectors to a level, each featuring a different variety of nasties, from tiny arrows to huge monstrosities blocking the entire passage! Some of them weave across your path in search of a collision, others fire missiles directly at your ship. It's important to avoid any contact with the enemy as very few hits are permitted before your craft explodes into a glittering fountain of particles. Although eight ships are available in reserve, this allocation is by no means an over-estimate - you'll probably need every one of them!

The Extirpator clearly won't score any points for originality but its overriding strength lies undoubtedly in the graphics department. The author has used many of the Atari's unique abilities to create a superb backdrop to accompany the fast-paced action. Background scenery varies considerably throughout the many stages and an interesting effect of depth is provided by four different speeds of smooth, horizontal scrolling. Above the main playfield there's a large, colourful status panel giving details of your score, power level and number of remaining lives. Much attention to detail has obviously been paid throughout. Introductory music - which doesn't continue throughout the game itself - is another plus point. The jazzy, foot tapping tune must surely rank amongst the very best available on the Atari, so even if you tire of the game itself you will still gain much pleasure from the title screen alone!

Some budget games seem to be thrown together with a minimal amount of effort, but the Silverbird label has risen to a class above all opposition with consistently high standards maintained throughout the range. The Extirpator is one of the finest in the bunch and anyone addicted to shoot 'em ups should get themselves a copy without delay.

Title:	**THE EXTIRPATOR**
Publisher:	**Silverbird**
Price:	**£2.99**
Players:	**1**
Control:	**Joystick**

Reviewed by Paul Rixon

CONTACT

FOR SALE

NINTENDO SYSTEM: Full system with light gun, Robot and 3 games. £160 o.n.o. Cameron MacMillan, Holybrooke Hall, Kilmacanogue, Co.Wicklow, Ireland.

PULSAR MOUSE PROGRAMS: Excellent art prog. Modified for mouse. Holybrooke Hall, Kilmacanogue, Co.Wicklow, Ireland.

SPEECH SYNTHESISER: Maplin Wordmaker (uses digitised words for a better quality speech output), £29. XC12 data recorder, £16. Logic Probe for hardware fault-finding, £6. Tel. 0502-566026.

XE SYSTEM: 130XE + 1050 D/Drive, fitted with U.S.Doubler, joystick. Dos 2.5, 3, 4, Turbo DOS. Mini Office II, Atari Writer plus, Spell Me, Alpha M/code on disk. Doublex software, games on disk, 50 blanks, magazines, Mapping The Atari, Compute!'s 3rd Book of Atari, Advanced Programming techniques, M/code For Absolute Beginners, Pokey Player, Graphix interface, £200 o.n.o. Phone Duncan on Linlithgow (0506)-845040.

XL SYSTEM: 800XL, XC12 cassette recorder, joystick, £150 worth of games. Sell for £125, o.n.o. Paul Talbot, 13 Riverside Drive, Clonshaugh, Dublin 17, Ireland or Tel. 353-1-470398 after 5pm.

1029 PRINTER: Complete with Atari Writer Plus and Home Filing Manager disks. Can deliver within 30 mile radius of Derby. £80 o.n.o. Ring Derby (0332)-666001.

BOOK: Mapping The Atari (revised edition), £5. Phone (0507)-605244.

800XL UPGRADE: Unused Rambo XL 256K upgrade kit including eight RAM chips, total value over £50, yours for £25 including postage. S.Beauchamp, 1, Gosden Close, Furnace Green, Crawley, West Sussex, RH10 6SE.

XL SYSTEM: 800XL, 1050 disk drive, 1029 printer, Philips monitor, new white computer desk. All boxed, with Mini-Office II, 10-Print, Atari Writer Plus, Trivial Pursuit and games. All for only £210. No splits. Phone: 01-517-8396.

COLOUR MONITOR: Big screen 64cm, same resolution as 8833 plus sound. RGB Analog or TTL. Steel cabinet pro model, £75. Circuit diagrams supplied. Tel. 051-427-1973, daytime.

XE SYSTEM: 130XE, 810 Disk Drive, 850 interface, Star printer (all cables). Joystick, trackball, touch tablet, loads of disks, De Re Atari, Technical Reference Manual, 800 & tape drive. Offers to Jon on Cambridge (0223)-842648 after 6pm.

XL SYSTEM: 800XL with 1050 disk drive, software including Mini Office II, joystick, books including Mapping the Atari, Assembler Editor cartridge, all excellent condition, £100 boxed and post free. Phone: Mayfield (Sussex) 0435-873234 after 6pm.

XL SYSTEM: 800XL computer, 810 disk drive, XC11 cassette, 1010 recorder, 2 joysticks, 100's of games, utilities, etc. on disk and cassette, books (some American), mags, Pilot Prog. Lang. and manuals, German Conversational and some ROMs. Cost over £500, sell for £300 o.n.o. Tel. 0344-56814.

XL SYSTEM: 800XL, 2 disk drives, 810 & XF551, XC12 cassette deck, Atari touch tablet with software, numerous software titles (some on disk) including Mini Office II, Technicolour Dreams and Time & Magik. Offers over £200. Tel. Portland (0305)-820993.

XE SYSTEM: 130XE, 1050 disk drive, datacorder, over 100 disks filled with utilities, games, etc., including Flight Simulator II, many books. Great offer at £200. Phone Pete on Frinton-on-Sea 678721.

PRINTER: 1027 complete with full instructions, transformer and connecting leads, boxed. Also various items of software on disk, ROM and cassette. Sell as a package, no sensible offer refused. Tel. David on 0780-56117 after 6pm.

XL SYSTEM: 800XL, 1050 disk drive mounted in attractive metal plinth, 1010 datacorder, Touch Tablet & Atari Artist, assembler editor cartridge, many games and mags. Very, very good condition. Sell for £100. Ring 0375-672935.

PRINTER: 1029, excellent condition, complete with dust cover, leads and instruction manual, £75. Phone Blackpool (0253)-891819, evenings please.

XE SYSTEM: 130XE computer, datacorder, joystick, 1050 disk drive, games. £150 o.n.o. Longton (0772)-615887 after 4pm.

XL SYSTEM: 800XL with 40 games, 2 joysticks, £80 or swap for Commodore C64. Contact 021-351-4269, after 5pm.

XL SYSTEM: 800XL, 1050 disk drive, 1010 recorder, 170 disk games including Summer Games and Beach Head II, 15 cartridges, 131 cassettes (many full price games, Arkanoid, U.S.Gold's, etc.), also 13 disks of P.D.Software, 100-cap disk box, Transdisk utility (tape-to-Disk), paddles, Quickshot 2 turbo, Cheetah 125+, Atari joystick (and Quickshot 2 that needs repairing). All cables, etc., 25 mags and 8 books, lots of manuals. Will split. Phone Stephen on Hertford 550591.

ASSEMBLER EDITOR: Atari cartridge with manual, also Monkey Wrench II cartridge with manual. Both for the 800XL/130XE, £15 the two. Phone (0443)-438169

XL SYSTEM: 800XL, 1050 disk drive, cassette recorder with many disks and tapes, two joysticks, many issues of Atari User and manuals. Ideal for beginner. Tel. Flint 61850 after 4pm.

XL SYSTEM: 800XL, 1050 disk drive, 1029 printer, 1010 cassette recorder, Touch Tablet, all in original boxes with cables and manuals, etc. Also Competition Pro joystick, Atari User and binders (from Issue 1) and Page 6 (from Issue 19). Many games and utilities on both cassette and disk. Home-built speech synthesiser (Atari User July 1987) thrown in. £300 o.n.o. Phone Danny on (0235)-812808 after 4pm.

XL SYSTEM: 800XL, 1050 disk drive, 1027 LQ Printer, WP package, joystick, manuals, various books and magazines and £200 worth of games and utilities, all in excellent condition, £250 o.n.o. Tel. 01-806-0075 after 7pm or weekends.

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ATARI USER: Set of all issues (first to last), mint condition. Any offers? Mini Office II disc with manual, £9.90, one pair of paddles and Super Breakout cartridge. Any offers? Write to: P.O.Box 8556, GR-10010 Athens, Greece.

XL SYSTEM: 800XL, 1010 cassette recorder, joystick, manuals/books plus 100's pounds of software on cassette/ROM. Excellent condition, only £70. Write to Mike at 15 Ambassador Gardens, Armthorpe, Doncaster, DN3 3JW.

16-BIT BARGAINS: Star LC-10 multifont printer with ST cable, First Word and 2 ribbons, £145. SF354 half-meg disk drive, £29. Timeworks DTP (v1.12), £40. Data Manager Professional (v1.1A), £20. Swift-Calc (V2.0), £17. OSS Personal Pascal (v2.02), £20, Microdeal ROM port clock cartridge, £17. Phone (0524)-415294, any time.

TRIPLER BOARD: Tripler board, allows 3 operating systems on 130XE, £20. Mapping The Atari (revised edition), £8. De Re Atari, £8. Tel. 0283-221001, ask for Malc.

XL SYSTEM: 800XL as new, cassette, all leads, boxed, original instruction books plus software. Perfect order, all ready to run. £40. Write to: 15, Highview Crescent, Hutton, Brentwood, Essex CM13 1BJ. Phone 0277-211710. No offers please.

XL SYSTEM: 800XL, 1050 disk drive, 1010 datacorder, joystick, paddles, loads of software, including word processor, database, music, graphics and games, leads and manuals. All for £130 o.n.o. Tel. 01-777-2573.

XL SYSTEM: 800XL with datacorder, 1020 printer/plotter with spare rolls of paper, also pens, joystick and lots of games, £125. Ring Dennis on 05435-5096.

XE/XL SYSTEM: 130XE + 800XL computers, XC11 tape recorder, 1050 disc drive (needs attention), over £200 worth of disks and utilities, £200 worth of tapes, various books, approx. 30 Atari User mags and 2 joysticks, all for £250. No splits. Buyer collects. Phone: Mr.Parfoot on Bognor Regis 829672 after 5pm.

XE SYSTEM: 130XE, XC12 tape recorder, joystick and games. Dust covers, many books and magazines, £125. Also computer desk, £25. Tel. Guildford 64853.

XE SYSTEM: 130XE with dust cover, 1050 disk drive with read/write switch, XC12 recorder, all well looked after and in original boxes. Two Quickshot joysticks, £150 worth of games on cassette and disk (Hardball, Jinxter, etc.), blank disks, all manuals. Atari User (from July 1986-End). £300 the lot! Tel: (0865)-340704. Buyer collects, Oxford area.

XE/XL SYSTEM: 65XE with XC12 recorder plus software (worth £50), £70. 800XL alone for £30, enhanced density 1050 disk drive, £65. Phone Neil on Deal (0304)-372969.

XE SYSTEM: 130XE with Computerhouse Controller Card, 1050 drive, XCII cassette, ICD printer connection, MIDI, mouse, trackball, 2 joysticks, books, mags, manuals, v.g.c. and with £550 worth of software. Call now!! Tel. 0305-773148.

520 STFM: With half-meg drive, mouse, mouse mat, v.g.c. and fully boxed, plus quality software (originals), and loads of disks and disk boxes. Ideal for beginners or upgrading. Only £230. Phone Colin on (Thorne) 0405-812965.

XL SYSTEM: 800XL with 1050 disk drive, two joysticks, two games (Ghostbusters & Dropzone), used twice, £95. Phone (0322)-67798 ask for Danny (Swanley, Kent).

ANTIC/ANALOG: Computer magazines and books. Ring Steve on 0602-847330.

PRINTER: 1029 including manual, word processor and leads. Good condition, £100 o.n.o. Phone Paul on 0993-850713.

XL SYSTEM: 800XL, 1050 disk drive, over 100 cassette/disk games also 60+ computer mags. A bargain at £180. Tel. 0702-544924.

XL SYSTEM: 800XL, OS Controller Card, Yorkie 256K memory expansion, 1050 drive, U.S. Doubler, Spartados 3, 850 interface, books, magazines, etc., £300. Also Juki 5510 printer, no head, £40. Tel. 0506-55992 after 7pm. (Central Scotland).

PRINTER STAND: Perspex, 80 col.(ex-Micro Media catalog @ £17.90), £10 + postage. 3 Monitor magazine binders (unused) with gold blocked logo on spine, £6 each + postage. Phone John on 0229-716363 (Cumbria) 8am-8pm.

PRINTER: 1029 complete with manual, £80. Also 822 thermal printer, £40. WS2000 modem with Datari interface, £100. Tel. 096-277-3360 (Dave, Hants).

WANTED

1010 CASSETTE DECK: Also 800XL user instructions. Tel. 01-422-0728, Evenings.

MAC/65: With manual. Please either write to Richard Carter, 73, Grasett Pk,. St.Saviour, Jersey, Channel Islands, or Tel. 0534-23399.

OMNIRES EMULATOR: If any reader is using this colour/mono utility on 520ST, or has copies of any magazine reviews or Omnires for sale then please contact John Rowlands, 26 Deepdale Avenue, Bootle, Merseyside L20 4NR or Tel. 051-933-8766.

SWAP: Sega Arcade system, Hang On, Wonder Boy, 1 Meg cartridge with joy pads for Atari compatible printer in good working order. Also wanted: 1050 with Happy or Laser or IS Plate, good price paid. Swap Atari Writer, Atari Basic and Atari Assembler cartridges for Atari Artist and Touch Tablet (or £30 o.n.o.). J.M. Donald, 15 Birkenside, Gorebridge, Midlothian, Scotland, EH23 4JA.

DISK DRIVE: 8-bit, preferably a dead one. Must be cheap. Write to: David Hoare, Flat 5, 50 St.James Road, Leicester LE2 1HQ.

1050 DISK DRIVE: Also disks. Phone 021-472-6883, after 4pm and ask for Steven.

GRAPHMASTER 4: Utility for copying graphic screens. Mainly sold in France. Please advise me of availability. G.Robert, 26 Fontaine Michaux, B-1400 Nivelles, Belgium.

PRINTER DRIVER: For Star LC10 printer used in conjunction with Publishing Partner Ver. 3 on the ST. Phone (0443)-438169.

PAGE 6: Issues 1-19 please. Ring Dennis on 05435-5096.

XC11/XC12 CASSETTE: Complete and working. Would consider cheap 1010. Phone John on 0229-716363 (Cumbria) 8am-8pm.

PRINTER/PLOTTER: Atari 1020 in good condition, preferably with spare paper and pens. Tel. Mr.A.Watterson on Clwyd (0244) 550717.

DISK DRIVE: 1050 or XF551, must be in good condition. Phone Andy on 01-993-5793.

PAPERCLIP MANUAL: Required for word processor. Phone 023-13-6183 anytime.

PEN PALS/HELP

TECHNICAL HELP: Come on all you ex-R.A.F. Bomber Command types, help a 67-year-old ex-bomb aimer, now on a pension and in poor health, to sort out his 800XL problems! What I need is a circuit diagram, literature and interface lead to connect my machine to my Centronic 737 printer. Write to: Ex-F/Sgt Benjamin Evans (641391), 64 Elliots Drive, Yeovil, Somerset, BA21 3NP. Tel.(0935)-22694.

800XL PENPALS: I have a 1050 disk drive, 1010 tape unit and would like to contact a penpal. I am aged 12. Michael Atkinson, 15 Watkins Drive, Prestwich, Manchester. M25 8DR.

GREEK PENPAL: 130XE penpals. If you want to swap ideas, hints and tips, write to Takis Pournaras, Kapodisteiou 59, 152 37 Filothei, Athens, Greece.

More CONTACT on page 50

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See PAGE 6 Magazine Issue 37 page 29 for further details of this super program. Tape version has all the facilities and fun of the disk version except that the number of horse databases is limited. *AVAILABLE EXCLUSIVELY FROM PAGE 6*

CONTACT extra

PEN PALS/HELP

ST PENPALS: Write to Roy Telles, 9, Abbey Close, Cippenham, Burnham, Berkshire, SL2 3LH.

XL PENPALS: Write to L.Scotland, 73 Langlaw Road, Mayfield, Dalkeith, Midlothian, EH22 5AT or phone 031-6603922.

CANADA: User wishes to contact other ST users to trade hints and tips. Please write to Philip C.Cavanagh, 532 Dunedin, Victoria, B.C., Canada V8T-2L6. (Tel.604-385-5886).

8-BIT PENPALS: Required in U.S.A. and Canada. Both cassette (48K) systems and disk (128K) systems catered for. Write to: Colin Newell, 109A Kirton Lane, Thorne, Doncaster, South Yorkshire, DN8 5RG, England.

U.S.A./WORLD: Reaching out to anyone interested in forming a world wide Atari user group for 8-bit practical applications, artificial intelligence and farming/gardening. We propose a quarterly Disk Newsletter with member submitted software. Ideas, software, enquiries welcome. Write to: Lee Jones, GROMOR-SYSTEMS, Rt.1 Box 76-B, Pleasantville TN, ZIP-37147-9801, U.S.A.

HELP: Football on the 8-bit. Can anyone please tell me of a spreadsheet/database for the 130XE which will enable me to rate teams, update ratings according to a fixed formula, and list ratings for recall later? Capacity required to list all the teams on the weekly fixed odds coupons, and their current rating. I am using Mini Office but the data recall is clumsy. Please phone or write to: Don Burley, 177, Legsby Avenue, Grimsby, DN32 0LB. (0472-74550).

8-BIT OWNERS: I am looking for pen pals who own an Atari 8-bit computer and disk drive to talk Atari. All letters will be answered. Write to: Mick the Fish, 7 Foundry Mill Crescent, Seacroft, Leeds, Yorkshire, LS14 6QT.

XL/XE PENPAL: Is there anybody in Co.Monaghan in Ireland that has an XL/XE computer? I have an 800XL with XC12 Datacorder. Write to: David Sharpe, Shannonville, Clones Road, Monaghan. (Tel. 047-82342).

8-BIT PENPALS: Anyone interested in contacting a 57-year-old enthusiast with time, 1050, 800XL, 1010 and into Strategy games and good cassette games. Write to: J.C. Baldock, 148B Reculver Road, Beltinge, Herne Bay, Kent, CT6 6PL.

8-BIT PENPALS: Hello, my name is Fran and I'm 23yrs old and own a 65XE and I would love to hear from any other male/female XE users. All letters answered. Must warn you I'm a complete novice, but would love any help and advice you can give me on how to get the best out of my Atari. Write to: Fran Anderson, 20 Silver Green, Fairstead Estate, Kings Lynn, Norfolk, PE30 4SG.

SPANISH 8-BIT USERS: I am trying to form a user group out here, and I look forward to hearing from all you 8-bit users in Spain (please write in Spanish or English) plus 8-bit users in the U.K. Write to: Steven Wilds, C/Payesas, 30, 07460, Pollenga, Majorca, Spain.

XL PENPALS: My name is David. I have an 800XL, 1050 disk drive, and a 1010 tape deck. I like arcade games, adventures and programming. I am 12 years old, all letters answered. Write to 64 Yarrow Court, Penicuik, Midlothian, Scotland, EH26 8HE.

XL USER: My name is David. I have an 800XL, 1050 disk drive, 1010 tape unit and a 1029 printer. I am interested in all types of software, adventures, arcade, etc. All letters answered. Write to David Foggin, 111 Lowood Lane, Field Head Estate, Birstall, Batley, W.Yorks, WF17 9DE.

XL USERS: I am an Atari 8-bit owner with a cassette based system. I would like to hear from any other XL users anywhere in the world. I have quite a good selection of games and am very interested in utilities. Please write to: Alex Meehan, 16 Seafort Ave., Sandy Mount, Dublin 4, Ireland.

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discretion.
Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

MIDI? MOLEX!

Apologies for the language but it's quite appropriate. Readers may have noticed last issue that we were hoping to have an exclusive offer on the Midi Master interface for the XL/XE but unfortunately we have run into a spot of bother.

The interface requires a Molex plug, which is the one that plugs into the serial port like the disk drive or cassette deck, and whilst we can get hold of them we have to purchase huge quantities which will make the whole thing totally uneconomic. Does anyone know where we can get hold of these plugs in reasonable quantities? Perhaps there is a retailer out there who stocks them or can point us in the right direction?

We need your help now so that we can continue to support the XL/XE. Once we can locate the plugs, XL/XE owners can have a MIDI interface and can enjoy the exciting world of MIDI music.

UPDATE

AMAZING (ISSUE 37): Thanks to everyone who came up with the answer to this problem, especially Algie who advised that the problems arise for two reasons. Firstly line 1297 lost its last character during printing but TYPO 3 users should have spotted this and secondly line 45 takes no account of people legging it off screen before collecting all of the diamonds. Algie suggests the following amendments.

```
500 IF MX=0 AND DIA<>DIAMAX THEN 700
501 LOCATE MX-1,MY,C
700 C=10:GOTO 502
1297 MX=18:MY=19:TIME=15:DIAMAX=17
```

This modification will cost you a life if you exit before collecting all the diamonds but that serves you right!

See the letters page for an explanation of the cock-up on the next two listings which were outside our control.

MCQ-TEST (ISSUE 38): The first column of the listing on page 28 is in fact the first column of Listing 3 which is on page 30 and the first column on page 30 belongs on page 28.

REAL TIME CLOCK (ISSUE 38): The first column on page 45 is a duplicate of the first column on page 46. The Cassette version on page 46 is correct but the Disk version has the first half of the listing missing. We obviously don't have space to list it all but will send a photocopy of the correct listing to any interested reader.

The ST FILE

PROGRAMMING with STOS

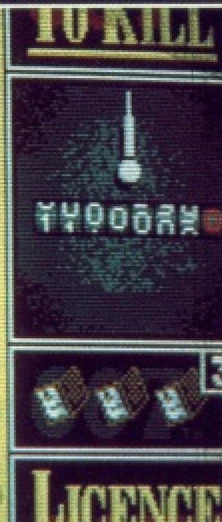
Type-in listings on page 70



XYBOTS from Domark



Above - RVF which Microprose claim is "the most thrilling, exciting and realistic bike racing game ever to have been released on a home computer"



Another big licence from Domark, this time a LICENCE TO KILL



CASTLE WARRIOR, Palace Software's follow up to Bio Challenge



TOTAL ECLIPSE, a puzzler from Micro Status

ST NEWS

Or, alternatively, a guide to Microprose as, since they bought Telecomsoft, they seem to have about 95% of all the new ST releases at the moment! RVF is a motorbike racing game produced in conjunction with Honda with some modest hype as shown above. PIRATES! was promised quite some time ago and should now finally be out in the UK but it is also the first release by Microprose Japan if you fancy a trip to buy your software. XENOPHOBE is a conversion of the arcade game of the same name whilst RAINBOW WARRIOR is, as you might have guessed, based around environmental issues and produced in conjunction with Greenpeace. Presumably some of the £24.95 you need to pay will be going to Greenpeace? TOTAL ECLIPSE is a conversion of an established 8-bit title with curses and puzzles in ancient Egypt. TOWER OF BABEL is a 3D puzzle game in which the player controls three robot spiders interacting with various obstacles. RICK DANGEROUS is a humorous vertically scrolling climber game with around 135 screens of action and fun. ACTION FIGHTER is coming up next month and is a conversion of the Sega arcade game, another vertically scrolling shoot 'em up. WEIRD DREAMS is ... weird! You drift between conscious and subconscious, between sanity and madness as you try to unravel intricate puzzles to return to a normal life. ORIENTAL GAMES is THE ultimate martial arts fighting simulator (yes, another one) but this has a few extra fighting styles and a six round tournament. SAVAGE is a sort of Rambo character who has to rescue his companions from a labyrinth of dank and gloomy dungeons. Diplomatic discussions? Nah, just kill it, stomp it, slash it, and flatten it leaving a nice world for your friends to come out to. Under development for release later in the year are MIDWINTER, set in the 21st century when a global climatic crisis has turned temperate zones to an arctic climate and you must survive invasion from others trying to survive, and SURVIVOR, set in a post holocaust desert wasteland where you must reclaim land, cultivate the desert and re-build the community. That's just a few, next week Microprose will have another 132 titles ready. So much for Microprose, what about the others? On a more serious note, HiSoft seem to be busy again with the release of Spectre 128, the ultimate Macintosh emulator, which will run all the latest and best Macintosh software. They also have an upgrade to their popular text editor Tempus called, surprisingly, TEMPUS 2 and are venturing into the C world with the HISOFT C INTERPRETER. Domark, of course, should have LICENCE TO KILL out plus XYBOTS which is reviewed (actually before release!!) in this issue. WICKED comes from Activision, a bit of the occult as does BOMBER T.A.C. a new flight simulator based on a real life bombing competition held by the United States Air Force! Finally (running out of room) Electronic Arts have a new role playing adventure game out later in the year called THE HOUND OF SHADOW developed by a company who have previously released board games and written fiction for various adventure magazines and based on the Cthulhu mythos developed by H.P. Lovecraft.

GOLD RUSH!

Gold Rush! tries to capture the hardship and adventure of California in 1848-49. You take the part of Jerrod Wilson, an East Coast city slicker, seeking fame and fortune. With your parents dead and your brother missing, you spend the early part of the game selling your Brooklyn home and preparing to head west.

There were, historically, three ways to get from the East Coast of America to the West in 1848, each with it's own set of perils. In the first fourteen minutes of Gold Rush!, you have to decide if you will attempt to make the treacherous journey overland, the long boat trip south around Cape Horn, or the shorter, but possibly even more dangerous trip to Panama and across the isthmus - that's a narrow strip of land between two larger land masses, folks!!

If you elect to take the overland route, careful timing is required to ensure that there will be plenty of grass on the plains to feed your animals. Hazards include steep mountainous terrain, long treks through the desert and, of course, Indians. The ocean trips take less personal planning, but you may be overcome by disease or storm as you sail the world's most menacing waters. You may even face food and water shortages before the long voyage is over.

If you decide on the shorter trip through Panama, there are natives and wild animals to worry about, not to mention quicksand and cholera. The choice of travel modes makes Gold Rush! almost three completely different adventures in one. I would advise you to take a shot at all of them just to experience the joy of dying in all it's myriad forms!!



One way or another, your travels should end at John Sutter's Fort. Once you reach the fort, you can search for clues to your brother's whereabouts, picking up gold along the way.

This is probably the last Sierra adventure you will see that was developed with the old AGI (Adventure Game Interpreter) system, used in the development of King's Quests 1,2 & 3. Since the release of King's Quest 4, we have seen the impressive results of SCI (Sierra Creative Interpreter), that gives double-resolution graphics and enhanced sound and music.

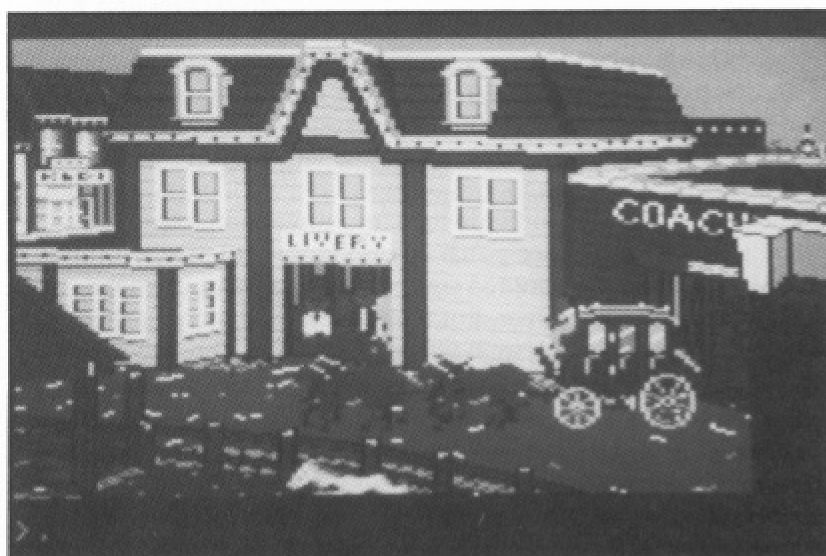
As Gold Rush! has been under development for some time, it did not make economic sense to go back and re-do it with the new system. At first, I anticipated disappointment with regards to graphics and sound, but I was pleasantly surprised. Even though the resolution is clearly no match for SCI, the graphics are quite good. There is an almost excessive amount of spot animation, such as people and carts making their daily rounds in your home town, and the bustle of the little townsfolk when you reach Sacramento. Keep an eye out for other miners as you head out from Sutter Fort, for they are liable to hang claim jumpers out there!

Gold Rush! does have some serious weaknesses. The first is the tedious nature of all **three of the trips to the West Coast of America. There is an attempt to spice it up a little by breaking each of these long automated sequences into smaller segments, and by giving a running narrative of the hazards of the trip. Each of these segments is separated by mini-adventures that you have to actually control, but they are short and few.**

In California, gold is found an ounce at a time, and there are 50 ounces to locate, with the closest being at least nine miles (screens) away from the fort. However, you only need a few hundred dollars in gold to buy some supplies (the rest is there for people who enjoy the thrill of discovery), and some screens offer up to five gold strikes, which speeds up the process quite a bit and emulates life, since gold wasn't just lying everywhere for the taking, even if it seemed like it!

Another personal criticism, being a mapping buff, is the weird layout of some areas. Around Fort Sutter, you might walk off the screen going north. but when the new one is displayed, you find yourself going south, or even east! This was obviously done to increase the number of locations that could be squeezed into the fort, unfortunately, it just serves to confuse.

Included in the game packaging is a 90-page historical textbook entitled 'California Gold'. The primary reason for this is copy protection. When the game is first run you will be asked a question and directed to the section of the book where the answer can be found.



As usual, the Sierra sense of humour is never far away; answer the questions wrongly and you'll be presented with the hangman's noose! You don't have to read the book to play the game, but it conceals a few small hints that might make things easier. It is, however, very interesting reading and increases the educational value of the game.

In conclusion, I would expect avid players of Sierra's games will not want to miss this one. As a game with educational value it is a clear success.

reviewed by John R. Barnsley

GOLD RUSH!
Sierra On-Line
£24.95

A FEW TIPS TO GET YOU ON YOUR WAY!

In Brooklyn: Close your account and sell your house.
If going by sea: Buy fruit.
Put flowers on your parents' graves.
Land Route: Unhitch the team and LOCK WHEELS on the steep hill.
Search abandoned wagon for food.
Buy mature mules.
Get the Bible from the man.
Cape Route: Get nothing BEFORE the storm. (Then get pig meat, string, paper clip, pole, metal scraps and fish)
Don't forget that Bible!
Going West: You MUST leave the campsite at the RIGHT time! (Too soon = Too muddy and Too late = Blizzard!)
To check on conditions, go behind the wagon and walk north; when the plain's mud recedes, SAVE GAME and then TALK TO CAPTAIN.
California: Pan ONLY in the eastern river - NEVER near anyone else!

3 The Sequencer

So far in this beginner's guide to MIDI we've looked at the basic concepts of MIDI and at the hardware used to produce music in a MIDI based system. This time we're looking at MIDI software packages, of which there are now dozens available for the ST.

Most of the available software falls into three main classes, namely sequencing, voice patch editing, and music score printing. More recently automated composition and arrangement tools have begun to appear, but these are aimed more at the professional musician so we'll ignore them here. The only essential item for the MIDI beginner is some form of sequencer software, so let's concentrate on that now and leave the rest for next time.

A musician uses a sequencer as a writer would use a word processor - as a means of rapidly realising, recording, and communicating abstract ideas to a wider audience. The sequencer goes one step further though, it can actually PERFORM the work to that audience. Software based sequencers are identical in concept to their hardware based cousins briefly described in the last issue. As a quick reminder, a sequencer behaves like a multi-track tape recorder which records MIDI data rather than musical sound. This data can then be edited as required, either to correct musical errors such a wrong notes or timing, or to change the nature of the music in a more creative way. The edited file can then be used to drive a MIDI equipped synthesiser to play the music it represents.

SEQUENCING FOR BEGINNERS

The simplest type of sequencer runs in playback mode only and is the MIDI equivalent of the ST sound chip based 'music player' programs. Obviously with these you can't actually create your own music from scratch, but they can produce spectacular results when using good quality music data files generated elsewhere. An excellent example is the MIDI player program found on Page 6 public domain disk ST108. It's supplied with 42 music files created with Activision's Music Studio program. These are mostly designed for playback using Casio's CZ101 synth, but work OK with many other types. The program also has facilities for



Activision's Music Studio - the lowest priced commercial sequencer perfectly suitable for the beginner

Now that you know a bit about the background of MIDI and have decided what hardware you may require, it's time to look at what software you might need to start creating music

changing MIDI channels, note ranges, and program numbers to customise the files for your own synth, giving you some creative scope. I've used it with my Yamaha PSS-680 and it works a treat! At £2.95 for the player plus music files it's an absolute bargain!

To be really creative you need a sequencer with both record and playback facilities. There are a bewildering number of these on the market, priced from around £3.00 for public domain programs to many hundreds of pounds for something like Steinberg's fabulous Pro-24 package, now a standard in the professional music industry. This type of sequencer comes in two basic flavours - for step-time and real-time recording, with some programs able to handle both aspects.

NO KEYBOARD SKILLS NEEDED

The step-time facility allows you to enter musical notes one at a time, as if you were writing music rather than playing it. Input can be through a MIDI keyboard, but is more usually done using computer keyboard and mouse. A step-time package is likely to be of interest to people with more enthusiasm and patience than playing skill, as step-time input can be tedious and time consuming. Its big advantage is that it opens up a whole new world of musical creativity to the non keyboard player.

Step-time programs are usually inexpensive, two examples being Electronic Arts' Music Construction Set and Activision's Music Studio each available for around £25. I've used both and much prefer Music Studio, as MCS can only handle three MIDI channels and three note polyphony, revealing its sound chip ancestry. Music Studio handles 15 MIDI channels and can use the PSS-680's polyphonic and multi-timbral capabilities to the full. Both programs can also create music using the ST's internal sound chip or via MIDI, so you can get started in a limited way even before buying a MIDI synth.

Operationally they're similar too, using a graphical user interface. The main workscreen displays bass and treble music staves onto which you place individual notes of selected pitch and duration using the mouse. Both programs associate colours with MIDI channels and programs, so by using notes of different colours you can drive your synth multi-timbrally (assuming it's

by John S Davison

capable of this) to play several different instrumental sounds simultaneously. Knowledge of music theory helps, but even without it's possible to simply transcribe sheet music onto the screen - and find it plays back perfectly through your synth! Yes, you can create music on your synth without even touching its keyboard!

If you don't fancy keying in your own music you can always buy Page 6's public domain Music Studio data disks. There are now five of these, between them holding over 200 different music files and offering something for all musical tastes. Using Music Studio's excellent editing facilities you can easily change the data to produce your own interpretation of the music for playback on your own particular synth. At £2.95 each they're unbeatable value and will keep you occupied for a long, long time.

MUSICIANS DO IT IN REAL-TIME

With a real-time sequencer you actually play the music in from a MIDI equipped keyboard, so you need to be more of a musician than with step-time software. The sequencer records your efforts as a tape recorder would, but with one important difference. As it's handling MIDI message data rather than the actual sound of the instrument, you can record the notes as slowly as you wish and then play them back at the correct speed - without the pitch change you'd get if you tried the same trick on a conventional tape recorder. This is great for handling those fast twiddly bits your fingers would never manage to play at normal speed!

Musical arrangements are usually recorded as several separate parts (or voices), with each part placed on a separate sequencer 'track', a term borrowed from the world of tape recording. The sequencer has many tracks, often 24 or more, each of which can be recorded on and played back independently of the others. Each track can be set to a MIDI channel, and the MIDI instrument receiving data on that channel set to a given MIDI program number to produce a given sound. Complex multi-timbral arrangements can be built up track-by-track in this way, and indeed this is how much of today's chart music is produced.

For instance, to record a piece using drums, bass, piano rhythm, and solo rock guitar parts using the multi-timbral PSS-680 you might work in the following way. First you'd allocate a sequencer track to each of the parts. You could record the drum part first using the PSS-680's percussion pads. You might then record the bass part to fit it while the sequencer plays back the drum track. Next, while playing back bass and drums, you could record an appropriate piano rhythm part. Finally you'd record the rock guitar solo track while playing back bass, drums, and piano. Get the idea? On playback of the completed work the PSS-680 sounds like a four piece band!

You don't have to record a complete part in one go either, as some sequencers allow you to chop each part into sections (or blocks), record and edit the sections separately, and then string them together in whatever order you want. This is extremely useful for the beginner, as it allows you to easily build up complex arrangements a few bars at a time.

EDITING AND QUANTISING

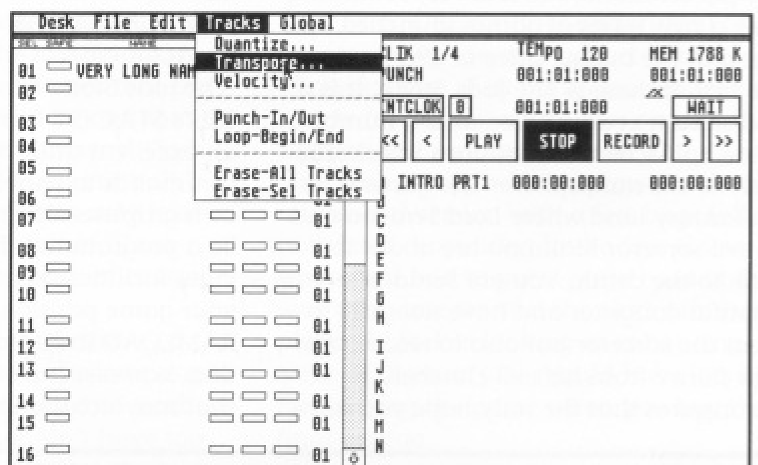
Editing is a very important aspect of MIDI music production, and the facilities available in different sequencers vary enormously. Before buying a particular sequencer make sure you'll be comfortable with the facilities offered, and with the way they've been implemented. Some of the things to look out for are described below.

The simplest (and least satisfactory) form of editing requires you to completely re-record the track containing the error. At the other end of the scale there's MIDI 'event editing', allowing you to individually change any MIDI data item recorded by the sequencer. Some sequencers take a middle approach allowing editing access to selected MIDI data types, or perhaps use a 'punch-in/punch-out' facility. The latter allows you to re-record just a section of an existing track between accurately defined start and end points.

Event editing facilities give you direct access to MIDI event data, for example individual Note On/Off message data, so you can correct 'bum notes'. Again this can be tedious work if you're dealing with raw MIDI data in text form, but some sequencers also provide a graphical interface, presenting the data either in musical notation, or in a grid format to make it easier for those who can't read music.

Editing can often be done at the 'block' level, allowing certain operations to be performed on groups of notes. For example, notes could be transposed into a different key, made louder or softer, their tempo changed, or even the basic sound with which they're played could be altered. Together, these facilities provide incredible creative flexibility, allowing widely differing versions of a piece of music to be quickly created from a single MIDI data file.

If you can't play accurately in time, then you need the sequencer's 'quantise' facilities. These allow recorded notes to be individually moved forwards or backwards so they all line up



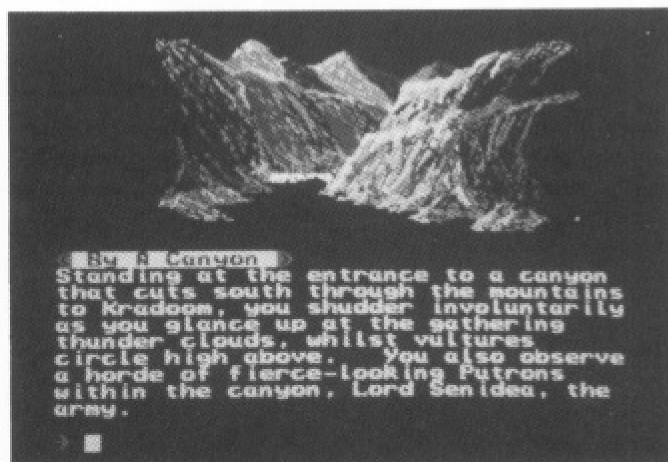
The 32 track Waddington Sequencer - a public domain sequencer that's a bit limited but worth a look

accurately on the beat or sub-beat. Trouble is, the results sometimes sound TOO accurate, making the music sound like it's being played by a robot (which it is, of course!). Some programs now provide the facility to introduce a small randomised error into the quantisation to make the sound more 'human'!

I've tried several real-time sequencers from cheap and cheerful public domain programs, through Microdeal's Superconductor, to the mighty Steinberg Pro-24. You definitely get what you pay for here - Pro-24 is easily my favourite, it's got just about every feature I could ever need, but there's no way I could justify spending nearly £300 on it for home use. Superconductor at £50 isn't bad, but has problems when simultaneously recording one track while playing back existing ones, seemingly caused by its lack of a software 'Thru' capability in record mode. Public domain sequencers, such as the widely available Waddington sequencer, tend to be limited in scope, but with patience can produce reasonable results.

Well, I've run out of space again. Join me next time to hear about other types of MIDI software and to find out how you might set up and use your own low-cost home MIDI recording studio. Who knows, it might just get you started on the road to stardom! ●

THE JADE STONE



A new adventure for the ST from one of the established companies seems very often to be priced way up at the £25 or £30 level these days - a bit expensive if you are not really sure whether you are going to enjoy it or are having trouble saving that much from your pocket money. So it is very refreshing to see a new series of games launched by Page 6 at the budget price of £9.95.

The first of these is The Jade Stone. It is a good-sized text adventure with a number of fine half-screen illustrations which add nicely to the atmosphere. The game is set in a fantasy land where Lord Senidea and the evil sorceror Mallumo are about to battle to the death. You are Senidea's beautiful daughter and have not only to defeat the sorceror but also to rescue your inept fiance from his evil clutches.

It transpires that the only hope you have of achieving this is to find the magical Jade Stone, but to do this you will need to pass a number of tests and acquire magical artifacts from three of the local denizens. The fact that you start off penniless and there seem to be a number of items you want to buy doesn't make this any easier!

How can you acquire some money? How do you get past the brigands guarding the road south? How can you get past the priests into the temple? And so on - all the ingredients of a traditional text adventure. This one is very professionally written and presented; it understood most of the things I tried straight away. It is memory resident so responses, even with the graphics on, are instantaneous. There are lots of useful features such as EXITS to find all visible routes, OOPS to take back a move, and VOCAB to see lots of useful words.

The Jade Stone was written using Sean Ellis's STAC (ST Adventure Creator). This is an excellent utility with lots of powerful commands to enable you to write your own graphics adventure without having to be a programmer. It automatically provides facilities such as SAVE/RESTORE of your game position to disk and RAMSAVE/RAMLOAD instantaneously to memory. It does however have a few idiosyncracies that may occasionally frustrate you.

There are two mutually opposed philosophies of how far the parser should go when trying to interpret the commands that you, the adventurer, have typed in. One approach is to only accept a sentence if every word in it is understood, the sequence of words is correct, the words form a grammatical structure which the program understands, and it is clearly delimited (e.g. by a full stop or the RETURN key). Anything else is rejected with a clearly stated message as to why the program could not interpret it. The second approach is to extract any words from the input that the program recognises, ignoring any others as irrelevant, rearrange them into an order that the program can use and assume that that is what the player meant. This philosophy, which is the one which STAC uses, allows the program to respond to far more of your input, but to my mind is much more suited to demonstrations of artificial intelligence than to adventure games. Unfortunately English is such a varied and sophisticated language that this approach can often result in nonsensical or misleading responses. For example ASK THE DOG TO GET THE GUN can be misread by STAC as GET DOG! This approach looks good in demos, appears good when you first use it, with the computer appearing to understand everything you are typing in, but can lead to much frustration when you really get down to trying to solve the adventure.

So, if you should encounter any frustra-

ZAK McKRAKEN

Zak is a reporter on an equivalent of the Sunday Sport, indeed some of his comic headlines could well have come from the paper itself! Zak is looking for a better outlet for his talents and, following a promise from his boss that he can write his novel after the next assignment, the adventure begins.

Zak seems to be caught up in a Sci Fi 'B' movie where some less than bright aliens wish to pervert the human races brains to a much more pliable state and they have set up a flying saucer station to achieve this. Our hero must, with your help, prevent this. Control of the game is through a novel method of using the mouse to click on keywords in a menu vocabulary, on objects in the detailed screens and by responding to the prompts given on screen. A good example of the friendliness of this comes when using a credit card. Click on the word [use], the prompt is returned Use on what? Click on [credit card], the prompt is Use cash card to pay, so you click on [bill] and Zak will go through all necessary transactions, including small talk and tidying up. Indeed Zak regularly remembers to tidy screens up and offers helpful hints if he thinks things are not going to plan.

Zak is also the master of the effective one liner and the game is littered with little asides. Unfortunately these do not change and they can become wearing after several viewings, as too can the cut away clue scenes. This is I fear the one downfall of this game, that eventually with repeated playings the humour will make the game pall and thus deter the player from completing it by retracing steps or restarting the game.

The game is installable on most disk types and thus the protection routines are built into the game in rather a clever manner.

This is a graphic adventure rather than an arcventure since everything that is needed is on screen and it is up to Zak or one of his friends to manoeuvre them. There are places to meet allies and once they are found the option to swap between characters becomes available and necessary. This all makes for a novel and interesting approach to adventuring.

Perhaps the way the story runs itself at times may upset purists but there is plenty of room for puzzles and few opportunities for vocabulary problems.

ZAK McKRAKEN
Lucasfilm
£24.99
Reviewed by Damon Howarth

tions like that when playing The Jade Stone, don't blame the authoress, Linda Wright, blame STAC! Fortunately Linda has put in enough vocabulary and handled enough word combinations so that this rarely proved a problem in this adventure.

There are plenty of clues to help you along the way. As long as you examine everything and note anything that might be a clue you should be able to solve most of the game fairly easily. There are a few sneaky places where you have to use an adverb (e.g. do something CAREFULLY) or study the pictures for clues, but generally the logic is not too demanding - you don't need to solve any really hard logical puzzles, just work out the appropriate place and means of using each item you acquire.

- *GAMEPLAY: Standard text adventure of good quality, plenty of useful facilities - very enjoyable*
- *GRAPHICS: Some very nice pictures accompany some of the locations. SOUND: None - not needed*
- *VERDICT: Excellent value for money if you want an inexpensive introduction to the world of adventures - recommended for beginners*

AVAILABILITY

THE JADE STONE
Written by Linda Wright
Published by Marlin Games/ Page 6 Publishing
Price £9.95

DOMES OF SHA
Written by Jack Lockerby
Published by River Software/ Page 6 Publishing
Price £9.95

Both Adventures are only available by mail and may be obtained direct from Page 6 Publishing, P.O. Box 54, Stafford, ST16 1DR.
You may use the order form on page 49 or order by phone

DOMES OF SHA

Three Adventures for the price of one

More budget-priced adventures from Page 6 Publishing - three for the price of one this time! This Tri-Pack is made up of three text-only adventures in the traditional style - Domes of Sha, Hammer of Grimmold and Mutant.

HAMMER OF GRIMMOLD is set in the land of dwarves; you have to defeat the evil wizard Valk in order to retrieve the magical Hammer of Grimmold and return it to its rightful owner - the King of the Dwarves. Unfortunately Valk is safe in his mighty Citadel some distance away and before you can get there you are going to need to find your way across a treacherous river, past a rather antagonistic troll and across a bottomless chasm, whilst avoiding death at the hands of the mysterious Hooded Men. Then you discover that the place is so heavily guarded by orcs that it seems impossible to enter anyway! Once you finally discover the way in to Valk's Citadel you find your troubles only just beginning as the place is full of Giant Rats, Dragons, Vampires, and, of course, more orcs!

I found this the easiest of the three - a good beginner's adventure - as long as you examine every item carefully and work out what it is for you shouldn't have too much trouble - but if you do get stuck you can always try one of the other adventures in the pack!

MUTANT is set on a South Sea Island so it is rather more like real life in its settings and its puzzles - death still lurks at every turn from crocodiles, alligators and piranha, but the RAMSAVE/RAMLOAD and OOPS facilities (as in all these adventures) ensure that this is not too tedious for the player. If you can survive these perils and work out how to get past dangerous landslides, deadly nettles, bottomless swamps and blocked tunnels, and find your way through head-high elephant grass, then you should have no problem in destroying The Mutant and saving Mankind!

THE DOMES OF SHA takes you to another exotic setting - a small planet in the far corner of the galaxy, where you and your pet, Grunt (a smelly and not over-intelligent beast who loves you very much), must discover the strange secret of the Domes which surround your valley and save your people from extinction. Again lots of problems to solve and places to explore. This one is probably the hardest of the three and has some very nice logical puzzles in it - like what to do in the Well Room and how to use the Bucket! (No, the Bucket hasn't got anything to do with the Well - that was just a coincidence!)

All three adventures were written by Jack Lockerby (with the help of his son I believe) for other machines such as the Spectrum and the Commodore, and have been very successful on those machines. These versions were created using Sean Ellis's STAC (ST Adventure Creator) and benefit from its excellent facilities such as quality SAVE/RESTORE routines and instant responses. They are also subject to the idiosyncracies of its parser (see Jade Stone review for details) which can cause a little frustration from time to time!

The review copy which I played was an unfinished version with a few bugs (all now fixed, hopefully) and a few places where you had to guess quite hard at the way the game wanted the next command phrased - Jack is looking at enhancing some of these so you should have lots of fun playing the game when you buy the final version.

When you create a game with STAC all your vocabulary, room and item descriptions and all the messages which you wish to display in response to the player's commands are stored in a LINK file. It is interesting to see that the Jade Stone LINK file is as big as Jack's three games' LINK files put together, but that each of these has as many locations as The Jade Stone! This is caused by The Jade Stone having more descriptive text and maybe understanding a few more of the things you type in, whereas Jack's Tri-Pack gives you more places to explore and things to do. You pays your money and you takes your choice!

- *GAMEPLAY: Traditional text adventures, a little limited in vocabulary in a couple of places, but generally very playable*
- *GRAPHICS/SOUND: None - not needed*
- *VERDICT: Good fun, plenty of variety, and very good value for your money*



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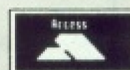
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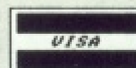
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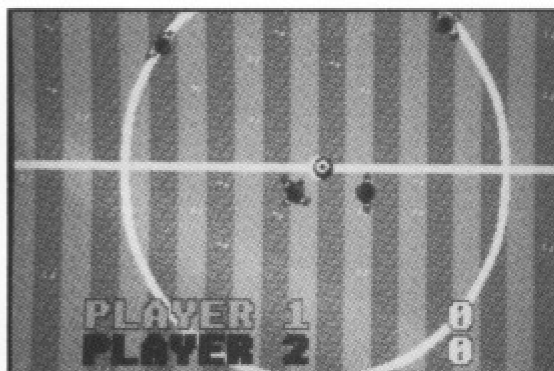


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Microprose SOCCER



This is a fast moving sports action game putting you in direct control of the players in a football match, either Association Football or Six-a-Side Soccer under American rules. The latter is played on an enclosed pitch, so the ball can bounce back into play off the walls. Within these there are several further choices. A single player can take on the computer while two players can play against each other in Friendly, League Tournament or World Cup Tournament matches.

The pitch is viewed from directly above, which means your players have a distinctly strange appearance. You see the top of their heads and shoulders with various appendages popping in and out of view as they move! As the players run about the pitch you receive control of your man nearest the ball. You only see part of the pitch at any one time, so it smoothly scrolls in whatever direction necessary to see the ball.

Joystick control is used, giving your man eight-way directional movement. If the ball is in free play your man gains possession by touching it, and if you continue moving him he runs along dribbling it. When the fire button is pressed the joystick no longer controls direction of movement, but instead determines the type of kick performed. Chip shots, straight vollies, left or right curling banana shots, or spectacular backwards overhead kicks are all possible. Strength of kick is controllable, from a light tap to a full strength boot down the pitch. Throw-ins, corners, and goal-kicks are all possible too, the only thing missing seems to be penalties.-

If the opposition is in possession of the ball you can perform a normal or sliding tackle, the latter made more difficult if it rains during a match. If you fail to regain the ball your opponent will eventually get a shot at goal, when you'll receive control of your goalie who can dive left or right or jump in the air to stop the ball. If a goal is scored you'll see a clever TV-style action replay showing what happened.

Other features of the game allow the setting of match duration between 2 and 12 minutes; action replays, bad weather, the naming of your own teams; and the saving/restoring of league position tables.

FACTS

Title:	**MICROPROSE SOCCER**
Publisher:	**Microprose**
Price:	**£24.95**
Reviewer:	**John S Davison**

SIGHT & SOUND

It looks good and sounds good, but the overhead view makes it look a bit strange. Smooth scrolling is good but a 3-D view might have been better

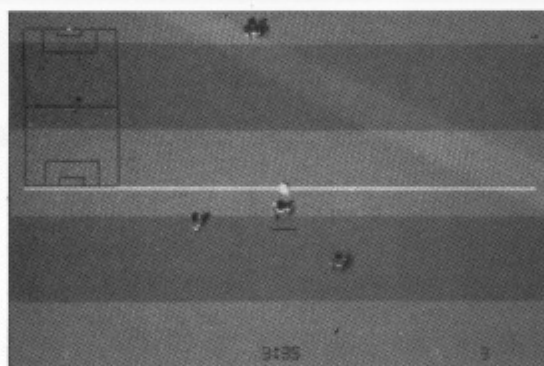
GAMEPLAY

Easy and exciting play will keep football fans occupied for hours. All expected options, with a lot of variation, are included except for penalties.

VERDICT

An excellent example of a sports action game, and easy enough for everyone. If you're looking for simulated football action, this is where to find it.

KICK OFF



FACTS

Title:	**KICK OFF**
Publisher:	**Anco**
Price:	**£19.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Graphics are good with some nice scrolling. Sampled sound is quite well used and adds atmosphere to the game

GAMEPLAY

Difficult to win unless you are a good player, set the computer several levels below you!

VERDICT

On the whole a good soccer game that ranks in the First Division. Compares very favourably to other football games

As the name suggests this is a football simulation in the same vein as Microdeal's International Soccer. Once loaded the game is a little bewildering and it takes careful perusing of the scanty instruction sheet to get going. The play itself is better than many of the genre and I liked the characterisation of the referees whose interpretations of various fouls add some variety to playing style.

Following my first attempt at playing it seemed to me that the training mode was a necessity as the actions are fast and an almost subliminal handling of the joystick is imperative. There are many possible variations of play, back flips, chips, volleys headers and controlled passing are possible, but as in the real game success comes from practice.

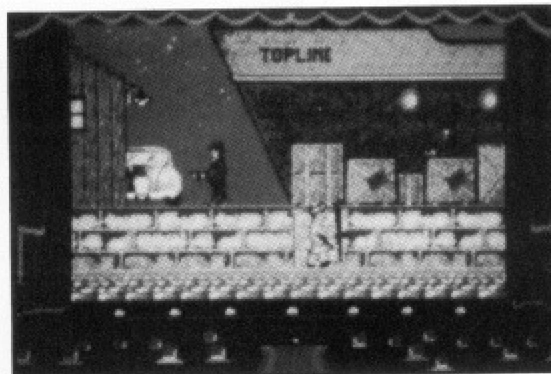
The pitch is well sized and scrolls comfortably and the inclusion of a small representation of the whole pitch allows the player to plan sweeping passes and spot defensive holes. Players are in proportion to the ball and pitch, the one under control having a line drawn under his boots. Possibly the most enjoyable feature of this sort of game is the two player option, happily this one has it and as a head to head it plays very well. The system even allows individual players to handicap themselves with differing skill levels. This can also be done with solo play but my advice is to keep the machine a couple of levels lower than you!

The other pleasant thing about the game is the eight player league option, which allows for any combination of one to eight people to participate in a season that is saveable to disk. This option gives the game a longevity option some others may not have.

As to the ease of play I found that against the computer on even levels, and even by playing one level higher, scoring goals was difficult while the ST found my various defences somewhat akin to Swiss Cheese!

The crowd noise and the possibility of player ejection for cynical fouling adds to the atmosphere and even the difficulty makes the game quite addictive. Kick Off compares well to its competitors and very favourably to International Soccer.

CHICAGO 30's



After the lively 20's, Chicago has become a paradise for gangsters and various other lawless individuals. Trouble continues throughout every day and night. As Detective Elliot it is your mission to enforce some law and order within Chicago. Your objective is to put an end to the illegal alcohol trade and cut off the main source of income to the 'Maffiosi' organizations. As you move through the four stages of the game, i.e. the docks, the suburbs, the city and the warehouse, you will come across a large number of gangsters under Al Capone's employ and you must eliminate these gangsters with your machine gun and salvo of grenades.

The storyline behind this game shows tremendous potential even though it is not the most original of themes, however, the implementation of this theme is, to be quite honest, downright awful! The game loads with a badly drawn representation of the illustration from the cover of the box. A credits screen then appears shown on a cinema screen, complete with curtains and a thinly dispersed audience in front. The entire game from now on takes place on this cinema screen.

The game itself is a horizontally scrolling affair whereby you walk from left to right shooting the various gangsters which pop up from behind windows, boxes, and crates etc. The graphics are unimpressive. The scrolling of the backdrops is reasonably smooth but the animation of the characters is jerky and of poor quality. The sound is also pretty uninspiring, consisting of a feeble tune on the loading screen and some rather limp sound effects during gameplay.

One little 'quirk' of the game which I feel should be noted is the fact that once you have finished a game you are never given the option of whether to play again, you have to! The 'screen' merely turns black and is followed by a display of countdown numbers as seen on the start of a film, and then the game starts again! Is this the only way they can make you have another go?

In many ways the game feels as though it has been released unfinished. The graphics are nowhere near the quality one would expect on the ST and the sound is no better.

FACTS

Title:	CHICAGO 30'S
Publisher:	US Gold
Price:	£19.95
Reviewer:	John Davison jnr

SIGHT & SOUND

Graphics fall far short of the ST's capabilities. Sound fares little better

GAMEPLAY

Uninspiring and uninteresting

VERDICT

A reasonable theme spoilt by poor implementation. US Gold could have, and should have, done a lot better on this one

THE REAL GHOSTBUSTERS



FACTS

Title:	THE REAL GHOSTBUSTERS
Publisher:	Activision
Price:	£19.95
Reviewer:	John Davison Jnr.

SIGHT & SOUND

Graphics are quite good but not out of the ordinary. Sound effects seem to be lacking but the theme tune is there, if only you could turn it off!

GAMEPLAY

A lively game but sometimes quite confusing as the screen gets too busy. Playability seems to have suffered at the expense of looks

VERDICT

Nothing particularly inspiring but then again nothing really bad. An average game that will be of interest to Ghostbusters fans but perhaps not others

This is the second generation computer game of the cartoon series of the film of the tune of the book of Ghostbusters, if that is the right order of things! I can't help feeling that this game relies totally upon its title and accompanying catchy tune.

You are supposed to join in with all your favourite Real Ghostbuster heroes and save the city from a haunting array of ghouls, ghosts and things that go bump in the night. You play the part of a Ghostbuster who has to zap and trap as many creepy ghosts and scary monsters as you can. It ends up as a 'hold your finger on the fire button' zap 'em up.

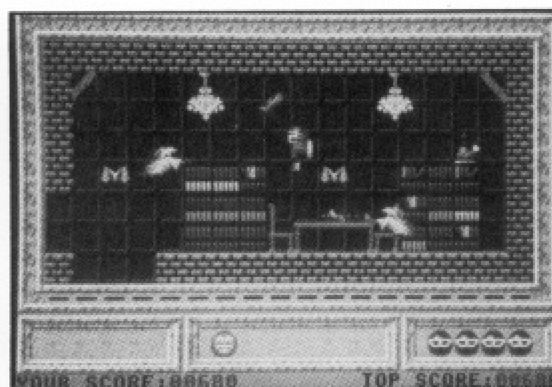
Graphically the game is colourful and lively but at times the screen is too busy, creating great difficulties with playability. There have been times when I have played this game when all the lives have suddenly disappeared to I know not where. Presumably some Nasty has been touched, but it is difficult to see exactly what was the cause so that you can avoid it in future.

The Ghostbuster tune starts at the beginning and goes on and on and on .... It's a good version of this five year old tune, but it has all been done before. Unfortunately, I've yet to find a way of turning off the tune without turning the volume right down. There is little evidence of the promised ghostly sound effects. Presumably if they are present, they are obliterated by the tune.

The instructions which accompany the game are sparse to say the least, showing more advertising material than game hints. The most annoying aspect of the game is the time it takes between 'game over' and the beginning of your next go. Each time a game is finished, over thirty seconds of the "Dynamic Introduction Screen" has to be sat through before another game can be played. This may be a welcome rest if you get a long go at the game, but as there were so many times that all my lives disappeared in a matter of seconds, I got rather fed up.

Whilst probably attractive to young 'Real Ghostbuster' fans, the game can only be described as overbearingly average. It does not excel in any department but equally, none of it is really bad.

TIMERUNNER



Red Rat are a software house that have supported Atari for a long time and who are now turning their hand to the ST. Captain Crumble is an old friend of the 8 bit users but I believe that this is his first visit to the ST. The story, lavishly supported by marketing ploys, is that following his retirement from world saving the Captain and his atom smasher now clean time corridors. Unfortuantely some Teezles have escaped and these mischievous little creatures, although not unpleasant, need rounding up before they cause unintentional havoc. Crumble rises to the occasion and sets off.

Thus begins a platform and ladders game with no ladders, Crumble's movements are dictated by use of his Jet pack and the safety of the ground he walks on. For example in the first level it is most inadvisable to step on anything other than the green carpet part of the haunted house.

The game has 'cutesy' graphics, with a touch of whimsy in them, for example on the first screen there is a large portrait over the fire of the children's hero Pob. Teezles must rank among some of the most sympathetic creatures ever seen in computerdom and the art work onscreen is detailed and strong. Control of the gallant Captain has to be good since many of his adventures along the way need very accurate placement. There are many things to beset the hero including the need to find hidden keys to secret doors, stop Teezle eggs from hatching and clearing time corridors on his way between levels. The Captain bonus shards that give various useful and some not so handy bonuses to him. To make the Captain's life just that bit harder he also needs to search for a time gate to enable him to leave a level inside the time limit. Should you reach a new level then a password will be allocated enabling you to return there should you eventually die. The game seems full of such thoughtful touches and shows itself well thought out in that way. The artist must be congratulated on his perception as the graphics do a great deal to bring out the underlying humour of the game, and the music too is most apt and adds to much of the fun.

FACTS

Title: **TIME RUNNER**
Publisher: **Red Rat**
Price: **£19.95**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Extremely effective graphics with good colours and balance. The sound has specially developed tracks for the Teezles, spot effects are good

GAMEPLAY

Strong and uncomplicated, the controls make for ease of use and the task to be accomplished is not unnecessarily complicated

VERDICT

I loved it, better than Black Lamp and greatly superior to Dark Castle. Treat yourself and buy it. Well worth a place in anyone's collection

VINDICATORS



FACTS

Title: **VINDICATORS**
Publisher: **Domark Software**
Price: **£19.95**
Reviewer: **John Davison jnr.**

SIGHT & SOUND

Graphics are colourful and bold with arcade quality but scrolling could be better. Very impressive sound, good samples and excellent spot effects

GAMEPLAY

Quite good for one or two players with a few nice options like being able to start at higher levels. Improves as the game goes on

VERDICT

Nicely presented and a good conversion of the arcade original but a fairly ordinary game that might not have long term appeal

An armada of alien space ships approach the Earth from the evil Tangent Empire and the only way to destroy them is to infiltrate the enemy with your SR-88 Strategic Battle Tanks - known as the Vindicators.

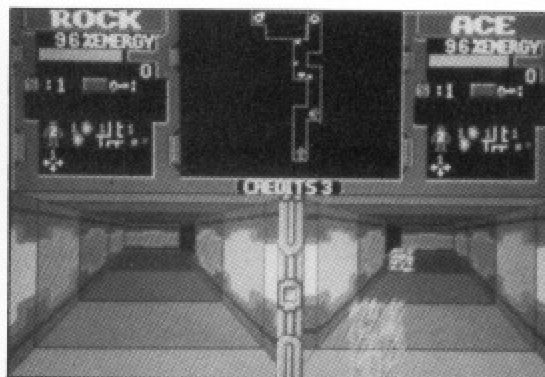
You control your tank through a scrolling backdrop of each space station, destroying enemy tanks and gun installations on the way to the control room at the end of each level. As you pass through the corridors you collect essential fuel and weapons along with your points, and also the ever useful battle stars and keys. At the end of each level, once the door has been opened with the appropriate key, you can exchange these stars for improvements to your tank, assuming you have collected enough of them. Improvements include increased speed or more powerful shots, smart shots or force shields and armour. You can also select a higher starting level at the beginning of the game, and you are rewarded for accepting this challenge by being credited with a number of bonus battle stars.

Control of your tank is with the joystick or through the keyboard. There is also a simultaneous two player option whereby two tanks can fight together against the invading enemy. Shooting the other player can transfer some of your fuel to them, which can be useful in a tight spot as you do not stay alive without fuel.

Graphically the game is both colourful and bold. The sprites are well animated as they move over a clearly drawn backdrop. The scrolling of these backdrops, although not as smooth as it could be, is inoffensive. In general, all the objects on the screen stand out well, and the overall appearance is one of arcade quality. In terms of sound, the game is very impressive. It loads with a fine example of sampled music. Throughout the game, all the spot effects, such as the gun shots and explosions, are excellent. There is also a brief sampled tune between levels.

Whilst being striking, both graphically and in terms of sound, the game itself is nothing out of the ordinary. It holds your attention well enough to start with but soon looses its' initial appeal.

XYBOTS



This is a two player co-operative game although it is possible to play solo. The stars of this 3D shoot 'em maze are Major Rock Hardy and Captain Ace Gunn who are trying to conquer the master Xybot in his catacomb like lair. The action takes place in a 3D maze with a small map showing the location of players and marauding robots. In two player mode each combatant may make their own way on the split screen thus overcoming some of the problems found in Gauntlet type games which meant parties needed to stick together.

Playing is the same for both parties and, in fact, it makes little difference to play if there are one or two involved. Movement is by joystick and needs some nifty twitching of the stick combined with fire button pressing to change the perspective of the warrior. The player view is similar to that found in the dungeons of Bards Tale except for the fact that the character can be seen as though being trailed with a hand held camera. It quickly becomes obvious that successful despatch of guards needs either a head on approach or well timed sneaky shots round corners.

The robots, at times, carry useful items with them such as keys, energy chargers, better weapons and most importantly coins. These coins may be exchanged for a multitude of things at the end of level shop, all items here have uses especially the map protectors which do mean that the likelihood of a surprise from stealthy robots is diminished.

The hand zapper that the heroes are supplied with is a powerful weapon but rapidly wears out and thus all power pods need careful conservation. There is little sound in the game apart from the useful spot effects and although the loading sequence music is easy on the ear, it is nothing overly special. The sprites are large, considering that each player only has half a screen to play in, and the animation and scrolling are smooth. The game evokes a feeling of almost roleplaying with live action paintballs, which is very positive.

The scenes with the master Xybot one on one are fast and furious and there is an atmosphere of comic strip tension around the game.

FACTS

Title: **XYBOTS**
Publisher: **Domark**
Price: **£19.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Large and friendly graphics with the flavour of the comic strip about them. Sound effects are fair but the music is somewhat lacking.

GAMEPLAY

Easy independent 'buddy' system, far more comfortable than either Leatherneck or Gauntlet. Controls sometimes a little dodgy though.

VERDICT

An interesting variation on an old 8 bit theme, I liked it although it creaked at the edges.

DARK SIDE



FACTS

Title: **DARK SIDE**
Publisher: **Micro Status**
Price: **£24.95**
Reviewer: **John S Davison**

SIGHT & SOUND

Realistic looking graphics with solid 3-D objects that move smoothly. Excellent sound which adds to the atmosphere of the game

GAMEPLAY

Not just a trigger happy game, a little brainpower is required to appreciate the play which has many interesting facets

VERDICT

Overall, I like Dark Side. It's graphically and sonically pleasing, has addictive gameplay qualities, and requires you to think

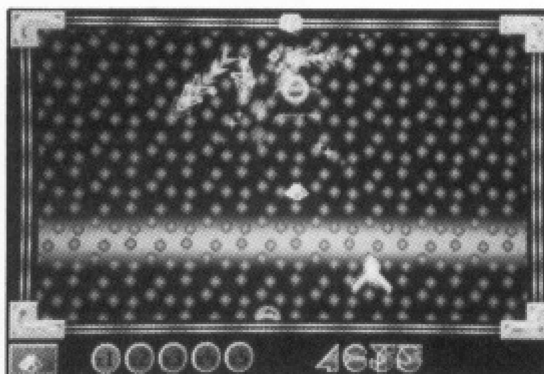
Two centuries have passed since the time of Driller, and the Ketars (the Baddies) seem to have spent it dreaming up Something Nasty to unleash on the Evaths (the Goodies) in revenge. This takes the form of a giant particle beam weapon powered by a series of Energy Collecting Devices, which they've sneakily built on the dark side of Tricuspid. They obviously intend using it to fry Evath, and in just a few minutes time there'll be enough power collected to do just that. Guess who's got the job of destroying those ECD's to save the planet from oblivion?

It's not just a case of blasting them to smithereens though. First they have to be found, and then deactivated in the correct sequence. If you take one out in the wrong sequence it immediately regenerates and is soon back in action again. The first few ECD's need to be destroyed as quickly as possible, as each one removed lowers the power collection rate, so giving you more time to find the rest.

Tricuspid is split up into sectors, each containing a variety of three dimensional structures. Some of these may be ECD's, but others are buildings, which can be entered and explored, assuming you can puzzle out how to open the doors, that is. The search for ECD's uses up fuel and shield energy, and if you run out the game's over. Supplies can be obtained from replenishment points located inside the buildings. You'll also come across Telepod crystals which enable you to use the Ketar Telepod machines to gain access to restricted areas, and Powerporters which offer instant teleportation. Prowling around most sectors you'll also find a Plexor, a sort of semi-intelligent tank, which gets mightily miffed if you do anything to upset it!

Control is via a mixture of keyboard and mouse or joystick. The fire button operates a laser, which can be used for operating door mechanisms as well as destroying things. The 3D graphics are all colour filled, with no primitive wireframe structures to spoil the realism. The program manipulates them rapidly, so screen update is quite fast and smooth.

GRIDRUNNER



FACTS

Title: **GRIDRUNNER**
Publisher: **Llamasoft**
Price: **£9.95**
Reviewer: **John Davison jnr**

SIGHT & SOUND

Graphically stunning, sonically excellent. Exactly the sort of sight and sound that a fast paced exciting game should have. Leaves you gasping

GAMEPLAY

Brilliant! Probably one of the most playable games so far on the ST. Everything you would expect from the man who made blasting real fun

VERDICT

Superb! Extremely playable. Great graphics. Good price. Go out and buy one now.

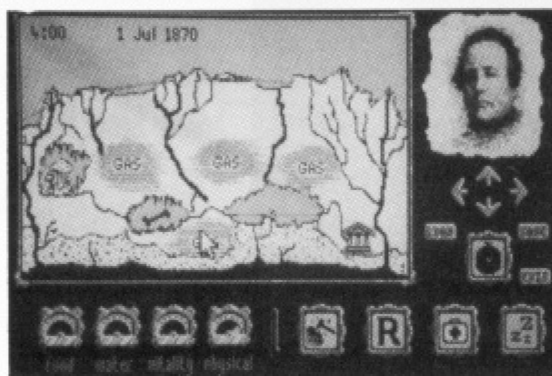
This latest release from Jeff Minter is possibly one of the most playable games to be released so far on the ST. Many of you will know of the game, as it has appeared in varying guises on a number of different computer formats but the graphics have now been improved dramatically on and there are a few new 'twists' in the game play.

Once loaded, you have a number of choices. Firstly you can set the games 'options', such as whether the pause mode is to be a 'freeze' frame or a graphics demo, along with the choice to change the two line message which appears on the title screen. Secondly you can study the inbuilt 'game secrets' option which gives some useful advice on how to destroy your enemy. Once you have decided to begin a game you are launched into your selected level and the battle begins...

The ship you use to do battle within the grid consists of two main parts, the main ship and the detachable nosecone. The main ship is moved around the screen using the mouse, the nosecone however stays wherever it is left on the screen and can be 'called' towards the main ship using the right hand mouse button. Upon pressing the left hand mouse button, both the main ship and the nose cone fire simultaneously. The main use of this nosecone is to augment shots which are fired through it. A single shot fired into the nosecone re-emerges as three separate shots along with the nosecone's own wide beam shot. The augmented shots can be directed forwards, to the sides, to the rear and to the forward and rear diagonals making the destruction of the Xtharrg 'snakes' and various nasties easier and more spectacular.

Graphically the game is stunning, as can be expected from Jeff Minter. The backdrops and sprites are all extremely colourful and all of the action takes place at the fastest speed possible. There are many notable graphical touches, too numerous to mention here, but many make startling use of colourflow whereby all of the ST's colour palette is cycled through. The game's sound is also of a high standard, consisting of a variety of throbbing bassy background sound effects.

JOURNEY
TO THE CENTRE
OF THE EARTH



FACTS

Title: **JOURNEY TO THE CENTRE OF THE EARTH**
Publisher: **Chipsoft/U.S. Gold**
Price: **£19.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Digitised stills are superb, the arcade pictures could be better. Musically fairly weak but spot FX and sampled sounds add to the atmosphere.

GAMEPLAY

Basically smooth, the mouse commands help. The arcade sections feel patchy at times and the sub games let down the overall production.

VERDICT

An interesting look into Victorian Science Fiction, a game well worth considering to both arcventurers and Sci Fi lovers.

Jules Verne would appear to be a rich field for ST Arcventuring and this game seems to contain most of the elements of the book. The player's role is to become one of four famous historical scientists, each of whom have their own strengths and weaknesses. Once a character is chosen the action follows a pretty, but unavoidable, prologue which has to appear on every restart which is a little annoying when early death occurs. There are some quite startling digitised graphics, some of which have been put into the gameplay and the mammoth picture made me wonder if the programmers had found a time warp camera! Gameplay takes place from a central mouse driven menu which allows the player many opportunities to issue commands. These can range from medication which brings up a screen with a neatly anonymous male body and a medi-kit, to rock sampling which allows the player to gauge his depth. Your state of health is shown by a slowly fading portrait of the chosen character and by an array of dials that would do some flight simulators proud. It is possible to monitor your physical and general condition, your vitality, rations, direction and water levels, each icon bringing up a different control screen.

The main screen consists of a direction chooser and a map of the journey with various pitfalls marked. Some of these routes lead to simple arcade games, earlier ones include a rock dodging game and a game of dodge the digitised mammoths. Both of these are more than adequate sub games and rack up damage and death on the character. There is not a lot of difference in play except for the fact one is played vertically and the other horizontally. Sadly these sub games do not seem to come up to the quality of the overall production of the game although there is some interesting use of sound which ranges from sampled snoring of your sleeping professor to a patchy sound of a pounding woolly mammoth foot. All map movements are accompanied by a re-assuring firm footstep and the accompanying music is easy on the ear but less than atmospheric.

BIO CHALLENGE



Following the degeneration of civilized humans into a weaker species it has been decreed that mankind must be transported, a la Robocop, into new plastic bodies. Bio Challenge is the Beta testing ground for this new concept and thus you are taken to far off planets to search for parts of a lost amulet, find various inimitable life forms and conquer them to see if the new bodies can cope. Pausing only to choose between one or two player options and to show a very acceptable action sequence which encloses the body in the 'Klipt' the game begins with a digitised level announcement.

The Klipt is controlled by joystick on a horizontally scrolling background and its main aim is to discover variable numbers of lost amulets in the allotted time span. This is five minutes on the introductory level andfour on all others, later levels having more parts of the amulet to discover and more planets to search. Surprisingly the creature does not have a gun of any kind until it reaches the end of a level and its main defence is in spinning like a top as it leaps in the air or in dislodging floating iron bars or charge slabs to fall on the local fauna. This killing is necessary since the recovered remains of the body, when returned to the mother sphere, provide the energy to turn the creature into a living rocket and thereby dispose of the guardian at the end of a level.

The control system is adequate and needs to be learnt, as does the method of dislodging floating bars at the right time. Action is not particularly fast paced and on the early levels the time factor is not too tight.

The main aim of the Klipt is to keep his oil reserves at the optimum by picking up the stray canisters that are strewn across the various planets. Helpful items include the rather shy cauldrons, these only appear when the creatures are not on screen and if broken give various bonuses to the Klipt, such as time extensions or powered armour that greatly enhance its combat capabilities. Unfortunately with many of the functions, like oil level and amulet finding, the rather cluttered information bar makes confusing reading and, especially in the early stages, is not too helpful.

FACTS

Title:	BIO CHALLENGE
Publisher:	DELPHINE SOFTWARE
Price:	£19.95
Reviewer:	Damon Howarth

SIGHT & SOUND

Above average graphics provide a more than adequate base for the game. Digitised speech is good with the beginning graphics. Spot sound fair.

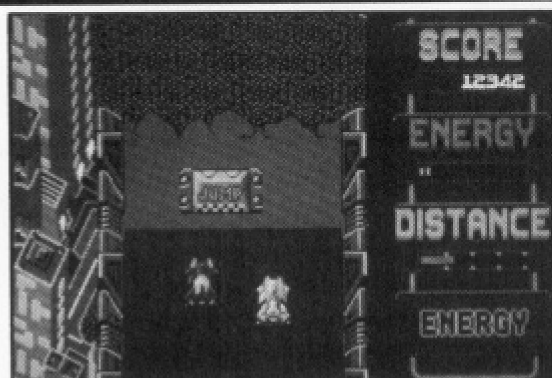
GAMEPLAY

Controls take a bit of getting used to, action is smooth although there are occasionally sluggish reactions.

VERDICT

A playable game, not entirely to my taste although it started to grow on me as I played it. Probably worth a longer look by the prospective buyer.

LED STORM



FACTS

Title:	LED STORM
Publisher:	Capcom/ U.S. Gold
Price:	£19.95
Reviewer:	Damon Howarth

SIGHT & SOUND

Graphics colourful and sprites recognisable, though perhaps a little small. Sound adequate but repetitive. Spot FX reasonable

GAMEPLAY

Very good, fast and multi-levelled, good sprite control, neat scrolling. Technically proficient.

VERDICT

I found it less than enchanting though it had a certain addictive quality. Probably a good miniaturisation of the arcade hit. that should do well.

You are expected to know the scenario of this arcade conversion car racing game beforehand since the accompanying instructions are surprisingly brief and little detail is included. The idea is to race along an elevated highway picking up various assorted bonuses and energy capsules before your time limit runs out.

The joystick controls all movements in the time honoured way for race games, the only difference being that the fire button allows the car to jump. Negotiating this highway is made harder by local drivers who tend to get in the way, although they may be leapt over. Sharp bends, oil slicks barriers that need to be cleared and there are additional hazards. If all that is not enough there are also mine layers and and lorries carrying high explosives which will destroy you on contact.

The loading screen and accompanying pounding sound track add to the expectations and the game scrolls very well with no loss of performance. The car that you use is not armed but can destroy enemies by landing on them following a leap, these need timing well otherwise the player will end up in more trouble than he started. My mind kept going back to the infamous Killer Cars in Monty Python! The race is fast and furious and needs the car at full throttle most of the time since the time limit is none too generous and the collection of the bonus fuel and time tokens is sometimes very hazardous. It often becomes necessary to leap holes in the road, but if this fails the hover carrier brings another vehicle at the cost of much energy.

The soundtrack is reasonable but lacks the power that I felt would help the game and the spot effects are quite reasonable even if sparse. The car sets off in Bugs Bunny style by contracting and then accelerating rubber band style. Fortunately the joystick control is very precise and nothing lets you down on the way. The most annoying part of the game seemed to be the TNT trucks which always managed to stop you just before a level is completed thereby increasing the frustration. The Manic Frogs add a little to the game's colour but little else.

JEFF MINTER'S

Super

GRID RUNNER

Some forms of combat are abstract in the extreme. One such is the 'videogame', In 'videogames', players use levers and buttons to alter the behaviour of small coloured blobs on a display screen. By causing one blob to intersect another blob in a certain fashion, a number displayed on the screen is increased, giving satisfaction to the player and affording the necessary element of competition.

One terrestrial lifeform decided to create such a form of ritualised combat, called *Super* **GRID RUNNER**

"**The Earth is under attack!!** The disgusting green Slimelords of the planet Xtharrgg have unleashed heavily-armed space battle fleets against the Earth for **no apparent reason!!** Luckily, we just happen to have a few of the **very latest** Vorton Hyper X-13 UltraStarfighters handy, but there's one problem... only **one pilot** is good enough to fly them... and that's **you!** You must go into battle against the Slimelords, piloting the X-13 over **incredibly realistic** abstract geometric grids! Can you **vanquish** the threat of the disgusting Slimelords and restore **peace** and **prosperity** to the 32x200, 512-colour galaxy? The **fate of the Universe** is in your hands!"

HINTS FROM THE STARFIGHTER'S MANUAL...

7.7 **Know your enemy.** As each new enemy presents itself, evaluate its characteristics and formulate an effective response

8.3 **Don't** loiter near screen edges. Something nasty may emerge.

8.8 **Be aware** of the positions of active Rail Guns.

9.1a Where possible, **destroy** a threat rather than evading it.

9.1c Where patterns exist, **learn them.**

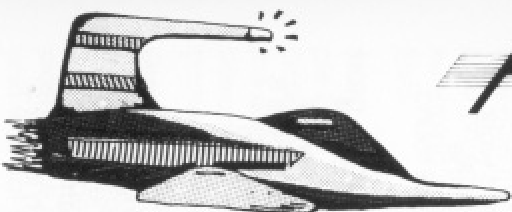
13.0 **Never** die by the hand of the enemy. Choose Suicide and take advantage of the benefits of martyrdom.

21.1 **Don't** shoot your Extra Life goats.

21.2 **Please Don't** shoot Bonus Llamas.

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TWO NEW GAMES FOR THE ATARI ST
GREAT GAME PLAY & GREAT VALUE!
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ANDES ATTACK

- AS SOON AS I PRESSED THE MOUSE BUTTON I KNEW I HAD TROUBLE - a pair of HASSLERS appeared promptly and slammed in to me. One life gone and little to show.

***To show who was in charge** I accelerated towards the descending LANDERS and wrote several of them off - then came the cry for help - a LLAMA had been nabbed by one. Of course it was far off, on the edge of the SCANNER - I accelerated towards it, ducking and weaving and luckily destroying an HACD** on the way. When I got there I carefully shot the lander, caught the llama and put it down on the surface, protecting myself with a dab of SHIELD.*

No relief - I had run into a bunch of seeded mines and an NPB was right ahead. I punched CONTROL for the SMART BOMB but too late, second ship gone.*

*My survival into the next wave was in doubt - time to **Sharpen Up!** As my third ship rezzed in, a MUTANT and a couple of HOVERDRONES appeared - this time the SMART did its stuff. I had a second to breathe, study the Scanner and decide where the most urgent threat was.*

Then, two more cries for help, nearer this time and close together. Flying now by instinct I managed to rescue both llamas at once. Wonderful - until the MOTHER SHIP zapped me. They fell to their deaths, from a great height. Six more to die and we'd lose the planet and plunge into a fight in Deep Space.

*No time to worry - two SPORES appeared right ahead - a second Smart saw them off. The next few secs were pretty productive - suddenly the Scanner began to clear but **what was this** - something coming at me FAST! Turned out to be a KUSSTOM BLYTTER and it didn't like me. I trashed it with my shield on an a well-aimed blast, and so into the next wave six of my llamas intact.*

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* 'Have a Crummy Day' - Mine Seeder
** 'Nasty Pulsating Blob'

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ST GAMES ... ST GAMES ... ST GAMES...

ROUNDUP

With so many games having been relesed in recent months it is impossible to review them all so here is a roundup of recent releses. We will come back to some of these with a more in depth review in coming issues

MILLENIUM 2.2

Electric Dreams *Price £19.99*

This is a space strategy game which involves a lot a data. Easy to use, hard to get into.

SIGHT & SOUND: Variable, from the very good to the more or less adequate. Pictures of bases and combat sequences excellent, representative maps patchy. Good loading sound but very little during the game except background effects and some of them can be annoying.

VERDICT: A good game with annoying bugs that make it crash, remember to save often. Not much help given at start up, some explanation of ship types needed. Worth a look, definitely needs detailed play.

COSMIC PIRATE

Palace Software *Price £19.99*

A fiendishly simple space trading/raiding game, hunt down merchant men and get a cut of the take. Then practice, get better, and do it again until you are a master pirate. Lots of twists, with plenty of shooting in it.

SIGHT & SOUND: Indeterminate really, some scenes are very good, the 3D vectors are adequate, some sprites are very good indeed. Overall they are good enough for their purpose. There is not a great deal of sound during most of the game, just the expected bangs etc.

VERDICT: I liked it! The game has some odd quirks, if you have a second drive DISCONNECT it otherwise there will be all sorts of fun at launch. I still can't make my mind up if it is Elite without the camouflage or just a good excuse for a wonderful shoot 'em up. Worth having.

SPACEBALL

Rainbow Arts *Price £19.95*

Basically this is a cross between Tele Tennis and Breakout. One or up to 8 players in a league. Game is different in both incarnations. It plays very well in either.

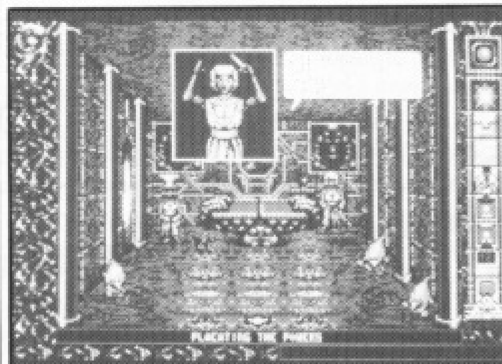
SIGHT & SOUND: Good clear and clean moving sprites with a selection of excellent backdrops. Sound is basically crash, bang noises but with a good loading soundtrack. Adequate for the game.

VERDICT: An entertaining diversion, good as a two player game and enthralling as one player against the odds. Well reworked classic game, try it first!

KULT - THE TEMPLE OF FLYING SAUCERS

Exxos/Ere Informatique

Price £24.95



The follow up to Captain Blood, this is an enthralling, novel and difficult little number. Sort of graphic adventure with a dark side to it. Impossible to describe in a few short words and worthy of a much longer review.

SIGHT & SOUND: Graphics are almost mind numbing, and fully interactive, sprites are large and beautifully formed and everything moves so smoothly. Good opening synth music, spot sound effects are well sampled and atmospheric.

VERDICT: A difficult and absorbing delve into the worlds created in Amazing Science Fiction, the only comparisons that are close are the Psygnosis graphic adventures. This is in a class of it's own with all the brilliance and impressionism of Captain Blood in it. Buy it, you will not be disappointed.

TYPHOON THOMPSON

Broderbund *Price £19.99*

A responsive and somewhat different means of control in this water quest. The skimmer is difficult to master but fun to use. Otherwise simple mechanics make the game playable.

SIGHT & SOUND: Generally the graphics are blue, the screen is uncluttered and good for arcade chases. The sprites are good and, although a tad small, make for good perspective. Sound is effective with a digitised opening track and good roars from guns and worried creatures.

VERDICT: Relies on the levity of the game, some fairly cute pictures and fast action. This chase 'em round is fairly non violent, clever, simple and collectable.

AIRBORNE RANGER

Microprose *Price £24.95*

A fast and furious combat game and somewhat strategic. The controls work well and include a template for the keyboard. An addictive game all round.

SIGHT & SOUND: Graphics are a bit blocky in the Commando mode but all the action is recognisable and they do not cause any handicap to play. There is not a lot of sound but the effects are quite suitable.

VERDICT: A thinking man's commando game, it will take a lot of getting into. It has been out a bit now and the general feeling is that it is well worth getting your hands on. Deserving of a much longer review.

FORGOTTEN WORLDS

Capcom/U. S. Gold *Price £19.99*

An arcade conversion of a 'buddy' shoot 'em up. It works well and fast with lots of effects and plenty to watch out for. Controls make for wild shooting at first but familiarity and a friend help.

SIGHT & SOUND: Spectacular backdrops and big smooth sprites, everything a shoot 'em up needs. There is a gutsy soundtrack, with effects and digitised speech well converted.

VERDICT: Everything about this smacks of a good conversion, but somehow I could not get into it. I can't say why but it lacked that spark of compulsion. Shoot 'em up freaks will probably be overjoyed with it, however.

TIME SCANNER

Activision *Price £19.99*

Pinball action in a big way. Mouse and keyboard compatible. You must attempt to complete five stages of pinball to escape a time warp.

SIGHT & SOUND: For a game like this the graphics need to be good and they are. They feel like a well gifted user of Ere Informatique's pinball construction kit was involved. All is light and bright, and tastefully garish in pinball style. Sound is

well used and sampled. It gives the atmosphere and noises of a pinball machine together with good special effects.

VERDICT: A very good game. As an old pinball wizard I found it addictive and enjoyable. I did wonder about its long term playability but then I haven't made the final screen yet. Probably the best pinball game about.

MAYDAY SQUAD

Tynesoft *Price £19.95*

A special combat mission game, select your own three person SAS squad and save an embassy. Some of the control swapping can get tricky in tight situations.

SIGHT & SOUND: Fairly good, chunky people in 3D corridors, good stills and Newspaper headings at the beginning and the end. Sound is nothing spectacular, basically all that would be expected in a game of this ilk.

VERDICT: Very playable although I feel that after prolonged use, Airborne Ranger would be far more challenging. It claims to be roleplaying but I am not sure and was not altogether happy playing it. Think hard before buying this one.

G.NIUS

Infogrames *Price £19.95*

One of those platform and dodge games which is already known to 8 bit users. There is a two player option although not in co-operative mode.

SIGHT & SOUND: Graphics are well formed, chunky and blend well with the varied and well drawn backdrops. Very comfortable to look at. The press release claims the sound to be greatly enhanced, but I am not sure what from. A pleasant introductory ditty and perfectly appropriate effects. More than adequate for their purpose.

VERDICT: I was not too impressed with this, and had difficulty deciding if I was in a demo mode for the first couple of games. The promised option screen seemed to be missing. The G.nius is cute though but he does have his problems. Maybe others will enjoy the challenge more than I did.

Roundup conducted by Damon Howarth

GALDREGON'S DOMAIN

Pandora
£19.95

John Sweeney goes adventuring again with a Dungeons & Dragons type program

In Galdregon's Domain you play the part of a barbarian hero. You have to explore the countryside to find inns and dungeons, gather information from the people you meet along the way and complete a number of quests in order to save the world from the forces of evil. The game is completely mouse driven, the right button flips you between three views, the left button selects movements and actions.

The main view is a picture of what you can currently see ahead of you - either a view down a corridor or a view across the countryside. The graphics are excellent, with plenty of variety in the 'wall' design in the various 'dungeons' and scrolling views as you walk across the countryside towards forests, towers, or castles. Below this view is a set of icons to allow you to use potions, scrolls or weapons, move, or flip between a menu and a Status Display at the bottom centre of the screen. You can also use the mouse to select menu items such as Open, Unlock, Take, Drop, Talk, Save or Restore. The Status Display shows your current Health, Strength and Stamina, all of which need to be carefully watched throughout the game and kept high by use of food, potions and friendly clerics. You need to keep the Status Display up all the time as you explore since items do not appear in the picture - only as an indicator on the Status Display!

The second view (right mouse button) shows you wearing your current set of armour and has windows for viewing the items you are carrying and the items in the current location. Whenever you kill anyone you use this to click on the bones to see what you can find! There are a few other items scattered around - although most are, disappointingly, just empty chests.

The third view is a map of the countryside, showing forests, towers, inns/houses, a Castle, a Temple, a cave, and various standing stones. Five of the forests, the Temple, the Castle, the cave and the Labyrinth are actually 'dungeons' which you need to explore and map in detail. The countryside and the dungeons are populated with a wide variety of inhabitants: men, women, monsters and animals, some friendly, some neutral, some deadly! These appear in front of you in the main view and, again, the graphics are excellent. You basically have three choices: talk, fight, or run.

Unlike Heroes of the Lance where the philosophy is 'if it moves - kill it!', you should talk to everyone you meet - you need to know who they are, and a lot of them will give you information. The text appears on a single line below the view and scrolls swiftly off to the left. Once you have ascertained whether you have met a good guy or a bad guy, you might assume that you should then follow the more interesting philosophy of 'if it moves and it's evil - kill it!' as in Times of Lore. Now I may have missed something, but I followed that philosophy and wasted many hours being a nice guy and getting nowhere. As far as I can tell the philosophy in Galdregon's Domain is 'if it moves - talk to it, THEN kill it!'

Nothing ever actually 'moves' in Galdregon's Domain. Although the graphics are excellent there is no animation at all, the characters appear in front of you from nowhere, you fight them by selecting a weapon and clicking on the character you wish to fight, eventually (if you win!) the character will be suddenly replaced by a picture of a corpse.

The game is not perfect. Death comes too easily and forces a complete reload. The positioning of icons and use of menus has not been thought through carefully enough - you very often die while trying to issue a command such as Switch Weapons or Load Game just because it takes too long to issue the command.

The original version would not work at all on my old 520ST with external SF354 diskette drive and had a number of other bugs. If you have problems make sure the version you have says 'V6' during the loading sequence, but even that version only occasionally loads on my SF354. Most of the time the startup message says "So Brave Pirate - you decided to break the law" and won't let me out of the castle!

Your objective is to acquire five gems and return them to the king, unfortunately the gems are possessed by five particularly nasty monsters. The game is full of all sorts of weapons, potions, scrolls, information and special items, and you will need lots of these in order to vanquish all the monsters. There is also one set of armour scattered widely throughout the land - you will need most, if not all, of this to win.

Despite its limitations and occasional unfriendliness, Galdregon's Domain is quite a nice little 'Dungeons and Dragons' introductory game - well worth looking at if you enjoy a bit of mapping, fighting and questing.

Mini Office Professional

Spreadsheet and Communications

reviewed by Matthew Jones

Some years ago, when I still used my Atari 800, Database Software produced a collective program comprising of several modules under the title 'Mini Office', which originated on the BBC micro. They were aimed at people who did not need full blown and expensive programs, but just needed to do a basic task of work. The result was a very workable system. Now, Database have released an ST version under the title 'Mini Office Professional'. With the professional range, Database has broken with tradition and is selling modules individually, each costing about the same as the complete eight-bit system. So the question is, does the Professional series match its name, and are they value for money? Two modules have been released so far, Communications and Spreadsheet.

Each module of the Mini Office Professional series comes in a box a little wider than a Filofax, which contains a manual, registration card, and two single sided (unprotected) disks. The Spreadsheet also contains a quick reference card, the Communications contains a 'getting you started' card. In each case, one of the disks is a 'startup' disk containing useful accessories, and the other contains the program.

THE SPREADSHEET

The spreadsheet module has the thicker manual, with 130 pages covering: Quick Start Tutorial, a short introduction to get you started; Basic Concepts, describing quite well what a spreadsheet is, how it works, and why you use it; a Tutorial, which has a much more thorough example (possibly a bit fast for some); a Program Reference; a section on the Desk Accessories provided; and a chapter which tells you about backing up the disks, using GEM and installing printers. In general, I was impressed with the manual, it is well written and uses good examples.

Nothing is perfect however, and I thought that it skipped over a few topics too quickly, and it ignores some important ones completely. For example, one important aspect of spreadsheet preparation is the copying of formulae. The program offers two different ways to do this - absolute, where cell references are copied unchanged and relative where they are altered to suit the column (i.e. a reference to cell A3 copied to column B would becoming B3). Unfortunately, there are times when you need to do both at the same time, adding the VAT rate held in a cell onto a table of figures for instance. Tucked away in an appendix is the solution to this - the ability to mark a reference as absolute, but if you didn't expect one, you'd never find it!

The spreadsheet program is actually very powerful, and does indeed deserve the 'professional' name. It can support up to four spreadsheets (though in a 512K machine they will be need to be small to all fit in at once), and has a large 'control panel' filling the top third of the screen. The spreadsheets are displayed in windows below this, displaying 14 rows at a time. The control panel has a large formula editing window, and buttons which are used to select the cell type, text justification and the number of decimal places for results. Entering data is done by moving the cell cursor to the desired input cell and typing. The text is entered using the control panels editing window, and terminated by pressing Return. If you do not want to type all the cell references, you can point using the mouse.

There are some good ideas in the spreadsheet, one is the Group facility (it may not be original but I've not seen it before). This allows you to specify that only certain rows and columns will be displayed when one of seven groups is selected. This allows you to cut out perhaps detailed information when you wish to print out or present data.

The spreadsheet is powerful in its programmability and the functions provided. For the latter, there are table look-ups and sort facilities which make possible very complex 'What if?' models. The programmability allows very intricate applications to be written. Some demonstrations are supplied, and I was quite surprised by their capability with brevity. One demo creates a group which contains only the females from a table of data on people.

Unfortunately, getting all the power out of this spreadsheet is going to be slow. I found it very slow entering data, so I did a little test. I typed in the number '1' forty times, and then I had time to set my watch to 'chrono' and record 50 seconds while it caught up! I tried turning off the auto move, in case scrolling was the problem, but it still took 30 seconds to complete. This really is slow, and due to spending a lot of time updating the screen - much of it unnecessary since nothing had changed in the button displays. Since it is easily cured, I would hope for an update soon (both programs are at version 1.00). Another slight niggle is the leaving out of a repeating character method, which allows you to put in lines surrounding tables (it may actually be there, but I couldn't find it).

None of the problems are serious enough to stop the use of the program - the power outweighs the problems and they will probably be cured.

Before I express my opinions on the communications module, I ought to express my 'interests'. As you may know, I did the programming for the conversion of Vicom to be FaSTcom on the Atari, and in fact am still working on Vicom on the Mac. I hope this does not colour my review adversely, and I think it makes me all the more qualified to make comment.

The manual for the comms program has a similar layout to the spreadsheet but is not as good, despite being by the same

authors. The writing is good, but it does not provide the information that is required for such a complex task as telecommunicating. Given that driving a modem is quite enigmatic, it is not good enough to state that if your modem is not included in the supplied files (only two are, the Hayes and MicroLink modems) then you will need to look in your modem manual to fill in the dialog. It took months to write reliable drivers for FaSTcom, so how is a user is expected to survive with just that simple comment? Further, provision of a 'direct connect' modem driver would be useful for those using the program as a simple terminal.

Another item that should be included is a pin-out of the Atari serial port. The correct cable for the modem is an important part of getting on line, and while most people can use a 'straight-through' cable, some

COMMS

cannot so assistance would be useful.

The comms program supports both teletype and viewdata (Prestel). After loading, it opens a GEM window which acts as a teletype terminal. In normal use, with an auto-dial modem, you select the dial option, and click on a service from the dialog. The program then dials up, and when connected it will send a log-on script for you, before leaving you online.

The phone book is changed via another dialog, which allows you to specify the terminal type (TTY, VT52, VT100 or viewdata) as well as the problematic baud rate, stop bits, parity etc. The possible baud rates are 300, 1200/75, 1200, 2400, 4800, & 9600. A nice touch in the phonebook is space to enter notes about a service.

Another dialog allows you to define strings sent when function keys are pressed. One set applies to all terminals and services.

In use, the teletype screen can be configured further. As well as the ability to change any of the options set in the phonebook, it is possible to specify the terminal width and the use of a large or small font. Why these were left out of the phonebook, I cannot guess.

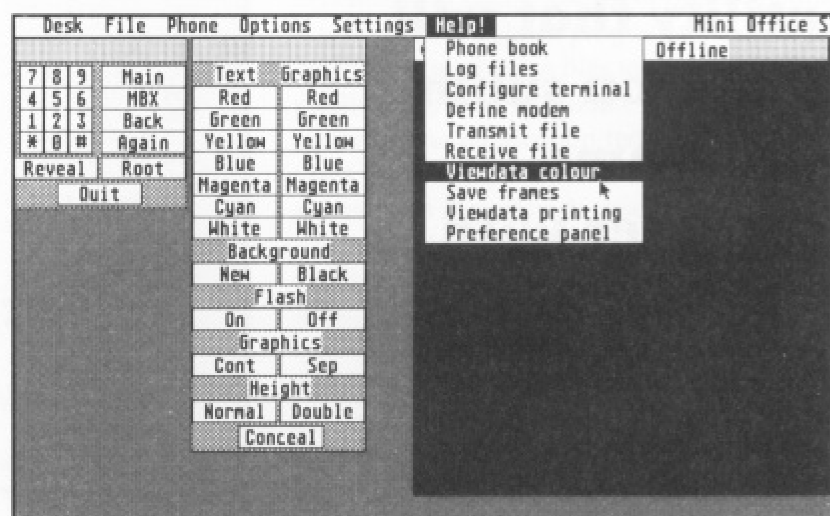
The teletype mode performed adequately, but it does not support scroll-back for viewing previous screens which I think is regrettable. I had a seemingly unresolvable problem connecting to the University VAX. Information I typed was received by the computer okay, but sent back with a parity problem. Other information sent by the VAX was fine, and adjusting the parity settings, etc just made it worse. This may not be a problem with Mini Office Comms, but I do not have comparable problems with other terminal software.

The program uses only a small input buffer, which is easily over-run at higher speeds, which will lose information unless you use flow control. Another potential problem for some users is that the Break button, displayed in a panel with other options like Local Echo and Auto LF at the bottom of the screen, produces what they call a 'real' break. To them, this is sending Control-P twice, which will interrupt the MicroLink computer properly. The rest of the comms world considers a true break to be a half second zero signal on the comms port, but given that Database run MicroLink, and it may be more useful to its users, it is fair enough.

Mini Office Comms is not all bad though, it does have some good features, among which are the ability to show control codes (useful for working out what is going wrong on VT100 screens) and the ability to transfer files using X-modem, Kermit and plain ASCII. X-modem is just the plain variety, with no Y,Z or window variations. The Kermit implementation includes facilities to GET files from a remote server.

A final feature is a modified closer button on the window, which changes the TTY screen to be a viewdata screen.

The viewdata mode displays three windows, one occupies half the screen displaying the comms session, the others contain buttons which send useful character sequences down the line, either Prestel commands, or attributes (double height, red, etc) but some of these did not always respond.



The program includes no message preparation facility, other than the notepad accessory which is not suitable for viewdata. It does however have a frame saver and viewer, good for offline viewing.

The main problem I encountered with the comms module was the general operating speed, and especially the 1200/75 baud emulation. Selecting to send a mailbox brings up a screen which the cursor beetles across for about 15 seconds after the signals stopped coming from Prestel. Even worse, when typing at the split speed, the transmission interrupts the reception, so you risk losing the reception of the echo if you type too fast. Since you will lose your position on the line, and think you misspelt a word if this happens, sending a mailbox is impractical unless you are prepared to type ridiculously slowly. The teletype mode suffers similarly. FaSTcom did not suffer from these problems, so it is possible to fix, and it spoils an otherwise good emulation.

A facility that the program offers is Prestel telesoftware download, but I could not get it to accept a single program from Prestel.

UTILITIES

Each program comes with an identical disk with four desk accessories, a calculator, memopad, text editor and disk utility. The latter allows operations such as formatting, folder create, rename, print file and directory. The text editor is a rudimentary one, but adequate for the job. Entering too much on a line caused an alert to appear that I could not get rid of, but I was pushing it hard. The memopad is based on the text editor, and can autoload a file of reminders.

I tried booting the utility disk, but was unable to load the programs due to lack of memory on my 512K machine. A program is provided to alter the memory requirements of the accessories, but you ought to be able to run programs 'out of the box'.

CONCLUSION

Although it may seem that I have found a lot of faults in the programs, they are good. The spreadsheet could do with a little tuning, but it has a lot of power now and is very good value for money. The communications needs a little tuning too, especially with regard to the 1200/75 baud use which is currently unacceptable. It is currently usable for some purposes, but most people will want to wait until it has been tightened up. Database are due to release three more modules: a Document Processor; a Database; and Presentation Graphics and it will be interesting to see if any lessons from the first two modules have been learnt. •

MINI OFFICE PROFESSIONAL SERIES

Spreadsheet £24.95
Communications £24.95

Published by Database Software

STOS

GETTING IT DOWN ON PAPER

Peter Hickman introduces a new programming series with a utility that will help you submit programs together with an animated picture that you can type in

For some years now PAGE 6 has had a reputation for publishing high quality program listings for the 8-bit machines, while ST owners have had little except reviews and small programs written in ST BASIC (put those sick bags away at the back!) and Assembly Language. Well now STOS has arrived and with it comes the opportunity for everybody in the 16 bit community to have a bash at beating brill programmers like Paul Lay at their own game.

While STOS is the almost perfect language for magazine listings as far as basic programs go, you may have been wondering how you can include all those juicy sprites, music, and screens when they are held as MBK files on disk and not DATA statements within the main program. Well, the guys at JAWX/MANDARIN have thought of this problem and on your Accessories

```
100 rem  ************************************************************
110 rem  *                                                          *
120 rem  *  PROGRAM NAME       : OUTDATA2.ACB                       *
130 rem  *  PROGRAM FUNCTION : DATA GENERATOR FOR STOS BANKS        *
140 rem  *  ORIGINAL AUTHOR   : FRANOIS LIONET                       *
150 rem  *  UPDATE AUTHOR     : PETER HICKMAN                       *
160 rem  *  REASON FOR UPDATE: TO ALLOW PEOPLE TO DUMP STOS         *
170 rem  *                     BANKS TO DISK, READY FOR              *
180 rem  *                     MAGAZINES SUCH AS PAGE 6 TO           *
190 rem  *                     PASTE THEM STRAIGHT INTO THEIR        *
200 rem  *                     DTP PROGRAM ALONG WITH STOS           *
210 rem  *                     PROGRAMS.                             *
220 rem  *                                                          *
230 rem  ************************************************************
240 key off
250 mode 1
260 show
270 F$="" : F2$="" : ERR_FLAG=false
280  :
290  :
300 gosub 390 : rem  ***     CLEAN BANKS      ***
310 gosub 440 : rem  ***      LOAD BANK       ***
320 gosub 790 : rem  *** CHOOSE OUTPUT MEDIA ***
330 gosub 1040 : rem ***      DUMP BANK       ***
340 gosub 1620 : rem ***     END PROGRAM      ***
350 end
360  :
370  :
380 rem  **********        CLEAN BANKS       **********
390 for LOOP=1 to 15 : erase LOOP : next LOOP
400 return
410  :
420  :
430 rem  **********          LOAD BANK        **********
440 repeat
450 repeat
460 F$="" : F2$="" : ERR_FLAG=false
470 F$=file select$("*.MBK","   ENTER THE NAME OF THE BANK              TO BE
LISTED",2)
480 if F$="" then gosub 1620 : rem *** END PROGRAM ***
490 if instr(F$,".")=0 then F$=F$+".MBK"
500 until instr(F$,".MBK")
510 on error goto 590 : rem  *** LOADING ERROR ***
520 load F$
530 until ERR_FLAG=false
540 on error goto 0
550 return
560  :
570  :
580 rem  **********   ERROR LOADING BANK   **********
590 clw
600 windopen 1,28,4,25,5,4
610 windopen 2,24,10,34,5,4
620 boom
630 window 1
640 curs off
650 clw
660 print : print " ERROR LOADING BANK!!!"
670 window 2
680 curs off
690 clw
700 print : print " PRESS ANY KEY TO CONTINUE....."
710 ERR_FLAG=true
720 wait key
730 windel 1
740 windel 2
750 resume next
760  :
770  :
780 rem  **********  CHOOSE OUTPUT MEDIA   **********
790 F2$=""
800 clw
810 windopen 1,18,5,44,5,4
820 windopen 2,33,12,14,9,4
830 window 1
840 curs off
850 clw
860 print : print " WHERE DO YOU WISH THE BANK TO BE DUMPED?"
870 window 2
880 curs off
890 clw
```

```
900 print : print " (S)creen."
910 print : print " (P)rinter."
920 print : print " (D)isk."
930 repeat
940 PRESSKEY$=upper$(input$(1))
950 until PRESSKEY$="S" or PRESSKEY$="P" or PRESSKEY$="D"
960 on error goto 1420
970 if PRESSKEY$="D" then F2$=left$(F$,len(F$)-4)+".ASC" : open out #1,F2$
980 if PRESSKEY$="P" then F2$="PRN" : open #1,F2$
990 if PRESSKEY$="S" then PRT=0 else PRT=1
1000 return
1010  :
1020  :
1030 rem **********       OUTPUT BANK       **********
1040 cls
1050 clear key
1060 rem ~~~> Listing
1070 for BN=1 to 15 : if length(BN)=0 then next BN
1080 A$="ORIGINAL FILENAME : "+F$ : gosub 1350
1090 A$="BANK NUMBER : "+str$(BN) : gosub 1350
1100 A$="BANK LENGTH : "+str$(length(BN)) : gosub 1350
1110 A$="" : gosub 1350
1120 A$="--------------------------------------------------------------------" :
gosub 1350
1130 A$="! Adrs !                        Datas                        ! Check !" :
gosub 1350
1140 A$="--------------------------------------------------------------------" :
gosub 1350
1150 AD=start(BN) : ADEND=start(BN)+length(BN)
1160 repeat
1170 A$="!      !                                                     !       !"
1180 B$=hex$(AD-start(BN),4)-"$"
1190 mid$(A$,3)=B$
1200 CHK=0 : for N=0 to 7 : if AD>=ADEND then B$=" 0000" : goto 1240
1210 D=peek(AD) : for X=1 to 3 : if D=peek(AD+X) then next X : goto 1230
1220 B$=" "+hex$(deek(AD),4)-"$" : CHK=CHK+deek(AD) : AD=AD+2 : goto 1240
1230 X=1 : repeat : inc X : until peek(AD+X)<>D or X=254 or AD+X>=ADEND : X=X
and $FFFFFFFE : CHK=CHK+D*256+X+$10000 : AD=AD+X :
B$="*"+(hex$(D,2)-"$")+(hex$(X,2)-"$")
1240 mid$(A$,9+N*6)=B$ : mid$(A$,59)=hex$(CHK,5)-"$"
1250 next N : gosub 1350
1260 until AD>=ADEND
1270 A$="--------------------------------------------------------------------" :
gosub 1350
1280 A$="END OF BANK" : gosub 1350
1290 wait key
1300 gosub 390 : rem *** CLEAN BANKS ***
1310 return
1320  :
1330  :
1340 rem **********       PRINT BANK       **********
1350 print A$
1360 if PRT<>0 then print #1,A$ :
1370 if inkey$<>"" then wait key
1380 return
1390  :
1400  :
1410 rem **********   ERROR DURING OUTPUT   **********
1420 clw
1430 cls
1440 windopen 1,28,4,25,5,4
1450 windopen 2,24,10,34,5,4
1460 boom
1470 window 1
1480 curs off
1490 clw
1500 print : print " ERROR DURING OUTPUT!!"
1510 window 2
1520 curs off
1530 clw
1540 print : print " PRESS ANY KEY TO CONTINUE....."
1550 wait key
1560 windel 1
1570 windel 2
1580 gosub 1620 : rem *** END PROGRAM DUE TO FATAL ERROR ***
1590  :
1600  :
1610 rem **********       END PROGRAM       **********
1620 hide
1630 default
1640 close
1650 end
```

disk you will find two sparsely documented files called INPDATA.ACB and OUTDATA.ACB .

OUTDATA.ACB is an accessory which will dump the contents of a memory bank to screen or printer in a format which allows it to be re-entered into INPDATA.ACB thus re-creating the memory bank. By using these accessories to create listings of memory banks it is possible to submit programs which make extensive use of these files to magazines for publication. Now we all like to make things easier for the publication team and in an ideal world everybody would send in unformatted text files of both programs and memory banks. Unfortunately there is a problem, OUTDATA .ACB is unable to output these listings as unformatted text files.

So what can you do? Well, try typing in Program 1 (you can ignore the rem statements). This handy piece of code is designed as a direct replacement for OUTDATA.ACB, and incorporates an option to create those illusive text files from your memory banks. All you have to do now is send in those STOS programs, and remember you should (if you don't want to lay awake at night haunted by the screams of the editor!) send in the source code (.BAS files and .MBK files) as well as text versions of both (use the SAVE "FILENAME-.ASC" command to get ASCII versions of STOS programs).

To get the ball rolling, Program 2 is a small STOS animation demo which will load a compressed picture bank from disk, grab some screen blocks from it, store the blocks in strings and then draw a display using the string blocks. By following these simple steps you should end up with a working version of the first STOS program published in New Atari User.

1) Boot your machine with the backup of your STOS master disk.
2) Insert your accessories disc and use the ACCLOAD command to load INPDATA.ACB and use the HELP key to get it running.

continued overleaf

TABLE 1 - Data to recreate a picture bank

ORIGINAL FILENAME : PICTURE1.MBK
BANK NUMBER : 5
BANK LENGTH : 1536

Adrs	Datas								Check
0000	0607	1963	*0006	000A	0033	0000	0002	0002	11FB1
0014	0000	03D1	0000	052B	*000A	0235	0000	0070	10BAB
002C	0770	0007	0707	0077	0555	0333	0733	0373	02223
003C	0567	0457	0347	0237	0000	0066	3366	3300	07608
004C	99CC	99CC	0066	3366	3300	99CC	99CC	0066	2CE62
005C	3366	3300	99CC	99CC	0066	3366	3300	99CC	29A96
006C	99CC	0099	0099	0033	6633	6600	CC99	CC99	30096
007C	0033	6633	6600	CC99	CC99	0033	6633	6600	331FE
008C	CC99	CC99	0033	6633	6600	CC00	CC00	CC66	4C9FE
009C	CC66	0033	9933	9900	CC66	CC66	0033	9933	430FE
00AC	9900	CC66	CC66	0033	9933	9900	CC66	CC66	4FCFE
00BC	0033	9933	9900	3300	3300	66CC	66CC	0099	26697
00CC	3399	3300	66CC	66CC	0099	3399	3300	66CC	2022F
00DC	66CC	0099	3399	3300	66CC	66CC	0099	0099	19CC8
00EC	0003	0700	3070	003E	FC00	0C1C	0C1C	3078	17C61
00FC	0001	C080	000C	1C03	07C3	E700	1E7F	0307	1ECD9
010C	0C1E	0001	F003	0FF0	C000	3C7C	3C3D	FC03	340CE
011C	0700	0C1C	3C0E	1C7E	3C00	01F3	C30F	3F7F	1AC29
012C	0003	07F0	3F7B	C000	01FC	3FBC	3C0F	1F00	1A435
013C	3C18	3830	0307	8000	0FEF	CF00	0E1C	F0E3	2D53D
014C	C3C0	0307	BC3C	3E3C	3F00	3C3E	000F	000F	23C9B
015C	8F00	3878	F0C3	E3C0	0E1E	3C0F	003C	3F1F	32583
016C	0080	0F0C	1C0F	0070	F073	33C0	1C3C	380F	1A489
017C	003C	1F0F	C0E0	0F38	700F	0E00	F003	C03C	31DB1
018C	3870	0F00	3C07	03F0	F80F	E0C0	0F0E	1C00	28B44
019C	F003	C03C	3FE0	0F00	3C01	00FC	FE0F	8000	3BA2B
01AC	0FF8	00F0	03C0	3C3D	3CF0	F80F	003C	007E	1869E
01BC	3F0F	000F	7C3E	00F0	03C0	3C78	7C0F	C000	23893
01CC	3C7C	0307	1F0F	000F	1E1F	00F0	78F0	F803	1EEA3
01DC	C03C	1E3C	3E3C	0F1F	8000	3C3D	FC0E	1C07	30025
01EC	060F	0080	0F00	7F3F	ECC4	03C0	1F0F	FBF1	2A052
01FC	3C1C	3E3C	001F	0FB8	303C	3E0E	1C0F	C0E0	1D568
020C	0F07	0003	8000	3830	1C0E	000F	03F8	F003	1D752
021C	00F0	F80E	0C07	0300	8000	060C	0007	0300	19118
022C	7C3F	C080	0100	C000	1800	1F0E	00E1	F0E1	3268F
023C	F000	783C	783C	001E	0F1E	0F00	87C3	87C3	30E3A
024C	00E1	F0E1	F000	783C	783C	001E	0F1E	0F00	2F076
025C	87C3	87C3	0087	0087	000F	1E0F	1E00	3C78	1892A
026C	3C78	00F0	E1F0	E100	C387	C387	000F	1E0F	3A584
027C	1E00	3C78	3C78	00F0	E1F0	E100	C300	C300	3E0D0
028C	0F87	0F87	00C3	E1C3	E100	F078	F078	003C	3C3C0
029C	1E3C	1E00	0F87	0F87	00C3	E1C3	E100	F078	30F48
02AC	F078	003C	1E3C	1E00	3C00	3C00	78F0	78F0	296D0
02BC	00E1	C3E1	C300	870F	870F	001E	3C1E	3C00	30E1C
02CC	78F0	78F0	00E1	C3E1	C300	870F	870F	001E	387DE
02DC	001E	009F	CF9F	CF00	E7F3	E7F3	00F9	FCF9	46D34
02EC	FC00	7E3F	7E3F	009F	CF9F	CF00	E7F3	E7F3	567A2
02FC	00F9	FCF9	FC00	7E3F	7E3F	007E	007E	00FC	2F868
030C	F9FC	F900	F3E7	F3E7	00CF	9FCF	9F00	3F7E	559E6
031C	3F7E	00FC	F9FC	F900	F3E7	F3E7	00CF	9FCF	4BBE2
032C	9F00	3F00	3F00	F3F9	F3F9	00FC	7EFC	7E00	402EA
033C	3F9F	3F9F	00CF	E7CF	E700	F3F9	F3F9	00FC	437CA
034C	7EFC	7E00	3F9F	3F9F	00CF	E7CF	E700	CF00	41AD8
035C	CF00	9F3F	9F3F	007E	FC7E	FC00	F9F3	F9F3	5FA60
036C	00E7	CFE7	CF00	9F3F	9F3F	007E	FC7E	FC00	4D748
037C	F9F3	F9F3	00E7	00E7	00FF	00FF	00FF	00FF	1F9B0
038C	00FF	00FF	00FF	00FF	00FF	00FF	00FF	00FF	007F8
039C	00FF	00FF	00FF	00FF	00FF	00FF	00FF	00FF	007F8
03AC	00FF	00FF	00FF	00FF	00FF	00FF	00FF	00FF	007F8
03BC	00FF	00FF	00FF	00FF	00FF	00FF	00FF	00FF	007F8
03CC	00FF	00FF	0000	F800	F800	F800	F800	F800	4D9FE
03DC	F800	F800	F800	7800	F800	F800	F800	F800	74000
03EC	F800	F800	F800	F000	F800	F800	F800	F800	7B800
03FC	F800	F800	F800	F800	7800	F800	F800	F800	74000
040C	F800	F800	F800	F800	F000	0380	003B	BFF8	593B3
041C	FE6F	BEE3	BFEE	EBE2	37EE	FAA2	1AAA	EEE0	5A53C
042C	A23E	E2CE	C1A2	3EE6	8A83	A23E	EE8A	A23E	5431D
043C	EA8A	8FA2	2EAE	8A83	AA7C	AEFA	F8F3	BEE2	544A8
044C	FAF9	E3FE	E60B	0F80	3FFF	8E03	8000	FE8C	52110
045C	00E0	00F8	00F8	00F8	00F8	00F8	00F8	00F8	007A8
046C	00F8	0078	00F8	00F8	00F8	00F8	00F8	00F8	00740
047C	00F8	00F0	00F8	00F8	00F8	00F8	00F8	00F8	007B8
048C	00F8	00F8	0078	00F8	00F8	00F8	00F8	00F8	00740
049C	00F8	00F8	00F0	00F8	00F8	00F8	00F8	00F8	007B8
04AC	00F8	00F8	00F8	0078	00F8	00F8	00F8	00F8	00740
04BC	00F8	00F8	00F8	00F0	00F8	00F8	00F8	00F8	007B8
04CC	00F8	00F8	00F8	00F8	0078	00F8	00F8	00F8	00740
04DC	00F8	00F8	00F8	00F8	00F0	0088	0088	0088	00668
04EC	0088	0088	0088	0088	0088	0078	0088	0088	00430
04FC	0088	0088	0088	0088	0088	00F0	0088	0088	004A8
050C	0088	0088	0088	0088	0088	0088	0078	0088	00430
051C	0088	0088	0088	0088	0088	0088	00F0	00C6	004E6
052C	318C	6318	C631	8C63	18C6	318C	6318	C631	35AD3
053C	8C63	18C6	39EF	BDFF	FFEF	FFFF	FFFE	618C	4FE8F
054C	6318	C631	8C63	18C6	318C	6318	C631	8C63	3B5AA
055C	18C6	318C	*000A	0318	C631	8C63	18C6	318C	2EA5A
0574	6318	C631	8C63	18C6	318C	6318	*000A	0631	36951
058C	8C63	18C6	318C	6318	C631	8C63	18C6	318C	2D6B3
059C	6318	C630	*000A	00A0	B6B4	0003	B6B4	0003	39760
05B4	B6B4	0003	B6B4	0003	B6B4	015A	0000	05AC	22B28
05C4	014E	0000	0002	0159	0000	05AC	0082	4124	049FB
05D4	0003	AB40	0158	0000	0009	0341	4646	*0004	1F62F
05E6	0546	4C41	4753	0000	0002	0002	4331	0000	0DC0F
05F6	0777	0002	4330	*0004	0000	0000	0000	0000	14AAD

END OF BANK

3) Following the prompts enter the data from TABLE 1 onto the screen, the program will automatically know when mistakes are made and will stop when all the data has been input.
4) Again, follow the prompts and using a blank disk save the data as- PICTURE1.MBK .
5) Type in PROGRAM 2, save it onto the same disk as PICTURE1.MBK and then type RUN.

So there you have it, the simple way to get your STOS programs published in NEW ATARI USER. If you have a program written using STOS send it in and share it with all of the other ST owners starved of type-in listings.

MORE STOS LISTINGS!

The reason we have not published many type-in listings for the ST is that the programs have either been very limited, as with ST BASIC, or have Resource or support files that cannot be printed. Now that STOS listings can be printed complete with pictures, sounds etc. to be typed straight in we will start to publish whatever STOS listings you send in. Peter Hickman will be running the STOS column in future issues which will include hints and tips as well as program listings. Start writing now and send your programs, hints and tips, to ***Peter Hickman, c/o NEW ATARI USER, P.O. Box 54, Stafford, ST16 1DR.***

```
10 rem      I HOPE YOU TYPED THE DATA FROM TABLE 1 INTO THE INPDATA ACCESSORY!!
20  :
30  :
40 key off : mode 0 : curs off : flash off : hide
50 dim COL$(3)
60 for LOOP=1 to 15 : erase LOOP : next LOOP
70 reserve as work 7,1554
80 reserve as screen 8
90 cls 8
100  :
110  :
120 rem      LOAD AND UNPACK PICTURE
130 load "picture1.mbk",7
140 unpack 7,8
150 erase 7
160  :
170  :
180 rem      GRAB SCREEN BLOCKS
190 PAT1$=screen$(8,0,0 to 16,16)
200 PAT2$=screen$(8,0,17 to 16,33)
210 PAT3$=screen$(8,0,34 to 16,50)
220 PAT4$=screen$(8,0,50 to 16,67)
230 WRITE$=screen$(8,0,68 to 200,119)
240  :
250  :
260 rem      DRAW FOUR EVER DECREASING BOXES
270 for LOOP1=0 to 191 step 16
280 for LOOP2=0 to 320 step 16
290 screen$(8,LOOP2,LOOP1)=PAT1$
300 next LOOP2
310 next LOOP1
320  :
330 for LOOP1=16 to 175 step 16
340 for LOOP2=16 to 288 step 16
350 screen$(8,LOOP2,LOOP1)=PAT3$
360 next LOOP2
370 next LOOP1
380 for LOOP1=32 to 159 step 16
390  :
400 for LOOP2=32 to 272 step 16
410 screen$(8,LOOP2,LOOP1)=PAT2$
420 next LOOP2
430 next LOOP1
440  :
450 for LOOP1=48 to 143 step 16
460 for LOOP2=48 to 256 step 16
470 screen$(8,LOOP2,LOOP1)=PAT4$
480 next LOOP2
490 next LOOP1
500  :
510  :
520 rem      PLOT TEXT ONTO BANK 8 THEN COPY WHOLE SCREEN TO PHYSIC
530 screen$(8,80,80)=WRITE$
540 get palette (8)
550 screen copy 8 to physic
560 erase 8
570  :
580  :
590 rem      INTELLIGENT COLOUR CYCLING USING INTERRUPT DRIVEN FLASHES
600 for LOOP=11 to 14
610 COL$(LOOP-11)=right$(hex$(colour(LOOP),3),3)+",4"
620 next LOOP
630 wait vbl
640 flash 11,"("+COL$(0)+")("+COL$(1)+")("+COL$(2)+")("+COL$(3)+")"
650 flash 12,"("+COL$(1)+")("+COL$(2)+")("+COL$(3)+")("+COL$(0)+")"
660 flash 13,"("+COL$(2)+")("+COL$(3)+")("+COL$(0)+")("+COL$(1)+")"
670 flash 14,"("+COL$(3)+")("+COL$(0)+")("+COL$(1)+")("+COL$(2)+")"
680 clear key
690 wait key
700  :
710  :
720 rem      THIS NEXT LINE DOES THE SAME AS TYPING IT IN DIRECT MODE!!
730 rem         ANYBODY GOT ANY IDEA'S FOR SELF MODIFYING PROGRAMS?
740 put key "reset`"
```

MAKE YOUR ATARI HAPPY!
Get some back issues NOW!

PAGE 6 back issues represent an excellent way of increasing the enjoyment of your Atari with articles to enlighten you, programs to type in and reviews of software to guide you. Almost all of the content of past issues will be as fresh and relevant today as when it appeared - increase your enjoyment now, before it's too late! Disks are available for all issues, containing all the 8-bit programs from each issue ready to run, and they often include bonuses not found in the magazine.

Limited numbers of the following are still available - see earlier issues for full description of contents

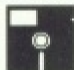
ISSUE 20 - GRAPHICS SPECIAL includes Touch Tablet utilities. *DISK ALSO AVAILABLE WITH BONUS PICTURES*

ISSUE 21 - Includes a Guide To Error Codes. *DISK ALSO AVAILABLE*

ISSUE 22 - Includes a type-in spreadsheet. *DISK AVAILABLE WITH BONUS*

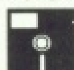
The following issues are still available

ISSUE 23 - Another superb machine language game WATER SKI SCHOOL will test your reflexes. WORDSEARCH will challenge those who like puzzles and other listings include SUPERCLOWN and the utilities XREF and VERIFY. A huge review of Ultima IV heads a comprehensive review section and Going Online Part 1 will let you know if telecommunications is for you. ST owners can discover how to get a bigger screen on their colour monitor and read reviews of Zoomracks, Sierra On-Line adventures and Pro-Pascal amongst others. Also, is it worth adding a 5/4" drive to your ST?



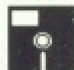
DISK AVAILABLE. Contains TWO BONUS PROGRAMS!

ISSUE 24 - The biggest issue so far published! Great ST section with info about ST disks and cartridges and loads of reviews. For 8-bit users there is MUNCHY MADNESS, the best game we have ever published plus a super cheque book utility AUTOCHECK. Plus all about checking your disk drive, another game called FLYING HIGH, more utilities, reviews of RAMBIT, Adventure games and lots more. Too much in this issue to list fully!



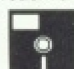
DISK AVAILABLE - Don't miss MUNCHY MADNESS, the best game we have published so far!

ISSUE 25 - Another biggie! A must for 1029 printer owners with 3 great utilities including a SCREEN DUMP. A super Japanese chess game called SHOGI, a type in REVISION C BASIC, a full feature on disks and more. For ST, type in OTHELLO, reviews of LEADER BOARD and MEAN 18, Hints and Tips and several other reviews and articles.



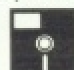
DISK AVAILABLE - ALL THOSE 1029 PROGRAMS READY TO GO!

ISSUE 26 - SOLID MODELLING is one of the best non-game programs we have published. Be creative! Other programs include SOURCE WRITER for machine code programmers, FLEXIBLE FINGERS to help you type, NUTS and more. Reviews of TRIVIAL PURSUIT, DVC/65, SPEEDSCRIPT and much, much more. ST users can learn all about HARD DISKS, FAST BASIC, TYPESETTER ELITE, DEGAS ELITE and read reviews on a whole lot more software.



DISK AVAILABLE - DOUBLE SIDED! TWO full sides with BONUS SCREENS for SOLID MODELLING!

ISSUE 27 - Some cracking listings for the 8-bit. In GREAT BRITAIN LTD. you can be the Chancellor and help run the country. COMPUTER GAMMON is a great Atari version of backgammon and there's ANTS IN YOUR PANTS, DISK COMMAND and others. There is a feature on word processing and stacks of reviews. The ST section includes an in-depth review of ART DIRECTOR and a neat little program to put scrolling stars on your screen! Lots of reviews including HABAVIEW, K-SPREAD 2, K-WORD and many more.



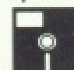
DISK AVAILABLE - some L-O-N-G LISTINGS!

ISSUE 28 - Extend the incredible original Munchy Madness with the MUNCHY MADNESS SCREEN DESIGNER, play GREEDY CATERPILLARS with a friend, teach your children with MOST HEART MATHS or make up some crosswords with XWORD. A long feature on flight simulation programs, hints on ZORK and loads of reviews. For ST users, the first in a series of USING GEM from C plus FLIGHT SIMULATOR II reviews, new books from COMPUTE! and a whole stack of reviews.



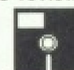
DISK AVAILABLE - Also contains the winning title screen from our competition.

ISSUE 29 - One that serious 8-bit users have been waiting for - a great full feature database - MJDBASE plus an amazing story maker, STORYBOOK, that allows you to create illustrated stories. Then there's a great game from ANTIC called CLIFFHANGER and an AUTORUN maker and more. Cheat on commercial games with ZAPPING THE RIGHT BYTE and read stacks of reviews. The ST section has a type-in program, SCREEN GRABBER, which allows you to 'snatch' pictures of commercial games to disk, plus the next part in our GEM FROM C series and reviews of Superbase Personal, K-COMM 2 plus lots of games including Barbarian.



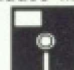
DISK AVAILABLE. DOUBLE SIDED. With BONUS story for STORYBOOK and STORYBOOK reader.

ISSUE 30 - A great follow up to Solid Modelling allows you to animate 3-D objects. Try 3-D ANIMATOR. How about a puzzle with LETTER CASTLE or an arcade style shoot-up from ANTIC called DESERT CHASE? Articles inlcude an in-depth look at GUNSLINGER, *Genealogy With Your Atari* and First Steps on saving screens. Loads of reviews including AUTODUEL and P:R: CONNECTION. The ST section has the continuing GEM series, CYBERSTUDIO, ZOOMRACKS II and lots of games and serious reviews including GFA BASIC, K-Roget, Jupiter Probe and more.



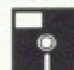
DISK AVAILABLE. DOUBLE SIDED with BONUS MACHINE LANGUAGE ADVENTURE only on the disk!

ISSUE 31 - Our massive survey on all the WARGAMES available for the 8-bit Atari heads this issue which also includes a great type-in synthesiser listing called ORIGINAL SYNTH. Other listings include FONT FACTORY, a nice character editor and a challenging game called BOWL TRAP. A feature on SSI, more Tutorial Subroutines, a long feature on THE NEVERENDING STORY, reviews of ROADWAR 2000 and THE DUNGEON plus many more are also in this issue. ST SECRETS, a new series on ST programming begins with a look at sound and the ST reviews section includes IMG SCAN, BASE TWO, TEMPUS and many more.



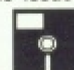
DISK AVAILABLE - All the extra files for ORIGINAL SYNTH set up ready to run plus all the other listings.

ISSUE 32 - A great card game for 8-bit users called, rather uninspiringly, WHIST plus a two player game of TENNIS and a GRAPH MAKER that works on the 1029 printer. A new series starts on EXPANDING YOUR ATARI and there is an excellent program/tutorial on BUBBLE SORTING. Reviews include THE PAWN, GUILD OF THIEVES, SPARTADOS/U.S. DOUBLER and many more. ST users can find out about programming graphics with ST SECRETS and can read all about the TURBO DIZER, PC DITTO plus reviews of Tanglewood, Defender of The Crown, Winter Olympiad, PROSPERO FORTRAN and more.



DISK AVAILABLE - DOUBLE SIDED with BONUS MACHINE CODE ARCADE GAME only on this disk.

ISSUE 33 - Many readers have said this is our best issue yet with an extensive feature on choosing a printer for your Atari, plus HEAVY METAL, a superb type-in machine language arcade game. Other type-in listings include another game, CRYSTAL CRISIS and two utilities, COLOUR TUNER and SOFTKEY, the latter being a super keyboard 'macro', utility. ST owners can find out more about PROGRAMMING GEM with another article in the series and there are loads of reviews including MASTERPLAN, GUNSHIP and SPECTRUM 512. There's much more in this issue besides, including some great music for the 8-bit.



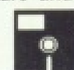
DISK AVAILABLE - including TWO BONUS GAMES that are not in the magazine.

ISSUE 34 - An ADVENTURE special to delight all fans of Atari Adventuring. Exclusive and extensive interview with LEVEL 9, two TYPE-IN 8 bit ADVENTURES, games reviews, bumper A-Z HINTS AND TIPS for all kinds of adventures, a survey of almost every known Atari adventure and much more. Other items include DAVE T'S DISCO, FLYING BY THE BOOK, TUTORIAL SUBROUTINES, the SHELL SORT and the regulars. ST File includes a round up of ST adventures, a review of DUNGEONMASTER, hints on adventures and stacks of general games reviews.



DISK AVAILABLE - includes TWO BONUS ADVENTURES only to be found on this disk.

ISSUE 35 - Use your powers of deduction TIME TO KILL to solve a crime Cleudo fashion, bend your mind with BALLBENDER, a very different game. Other great gams include REFLEX in machine code and JUMBLE CELL, a real puzzler. Plus HOW TO WRITE YOUR OWN BOOK on a 130XE, CHARACTER ANIMATION, STRUCTURED PROGRAMMING plus the usual host of reviews. The ST section includes MAD, the best type-in ST listing so far published - type it in ST BASIC, end up with a machine code game! Also, a comprehensive article on VIRUSES, what they are and how to deal with them. Loads of games and other reviews.



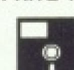
DISK AVAILABLE - includes BONUS machine code game only on the disk. ST DISK also available for this issue with MAD ready to run.

ISSUE 36 - Another cracking machine language game from Paul Lay called STAR RIDER plus HEADBANGER, also in machine code, MUSIC BOX and SYNTH II to type in. MAPPING YOUR ADVENTURE shows you how to succeed in adventures, 850 SPLIT reveals secrets about the 850 interface, DESIGNER KEYS allows you to customise the keyboard. Then there's BEGINNER'S BASIC plus a new series on TURBO BASIC, reviews of MERAK, Draconus, Joe Blade and more. For the ST we have B BOOT to allow you to boot from drive B, STOS reviewed, TRIP-A-TRON, SPELLBOOK, SUPERBASE PROFESSIONAL all reviewed and you can find how to never get lost again with AUTOROUTE. All this plus much, much more.



DISK AVAILABLE - includes BONUS MACHINE CODE UTILITY to add 128 colours to Atari Artist or Micro-painter pictures.

ISSUE 37 - Some excellent listings including SCROLLY TEXT EDITOR, a superb utility for creating scrolling messages on the XL/XE just like those on the ST, plus BLASTCOM, a fast and furious blast 'em up, and SUNPLOTTER which shows you the position of the sun and times anywhere in the world. Also FINDER for searching your programs, the first part of MACHINE CODE LIBRARY and the CASSETTE DATABASE. Loads of reviews, as usual, including SpartaDos X. ST File includes the first part in the MIDI series and coverage of PROTEXT and FLAIR PAINT plus reviews of HEADCOACH (where have you seen that reviewed elsewhere?), SPRITE MASTER and a whole host of games. Lot's more besides.



DISK AVAILABLE - includes BONUS program UNDER STARTERS ORDERS, a superb horse racing game for all the family

ISSUE 38 - A super educational program, MCQ-TEST, for revision, homework or fun. The MACHINE CODE library looks at saving and loading memory, a utility lists a REAL TIME CLOCK for your XL or XE and THE PODZ is a great scrolling game. There are several more listings. The TIPSTER begins and articles include THE GAMES THEY NEVER RELEASED and more on Turbo Basic. ST owners can enjoy type-in routines for graphics, reviews of MINIX, FUN SCHOOL 2, POLICE QUEST II plus loads of games. The MIDIots guide continues and John Sweeney looks at KINGS QUEST and LEISURE SUIT LARRY.



DISK AVAILABLE - includes GALACTIC CRESTA a BONUS MACHINE CODE GAME previously released commercially!

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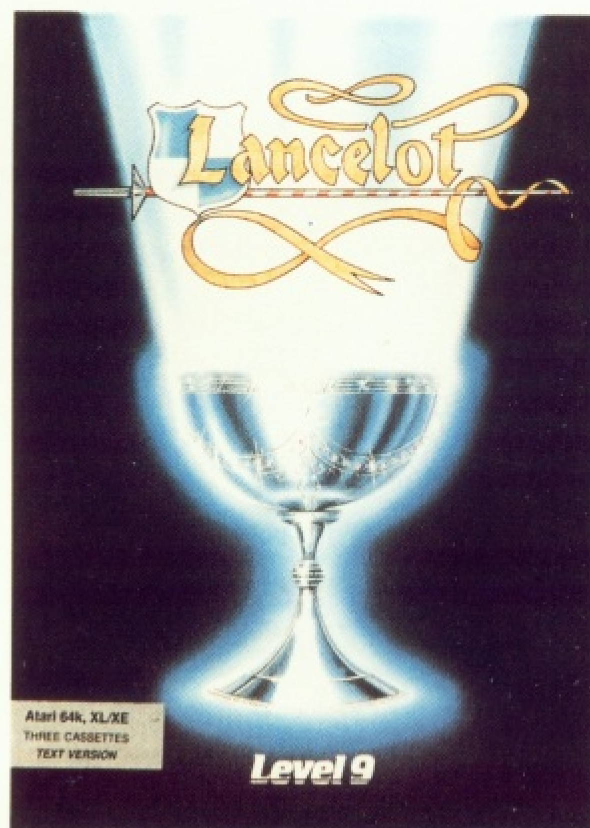
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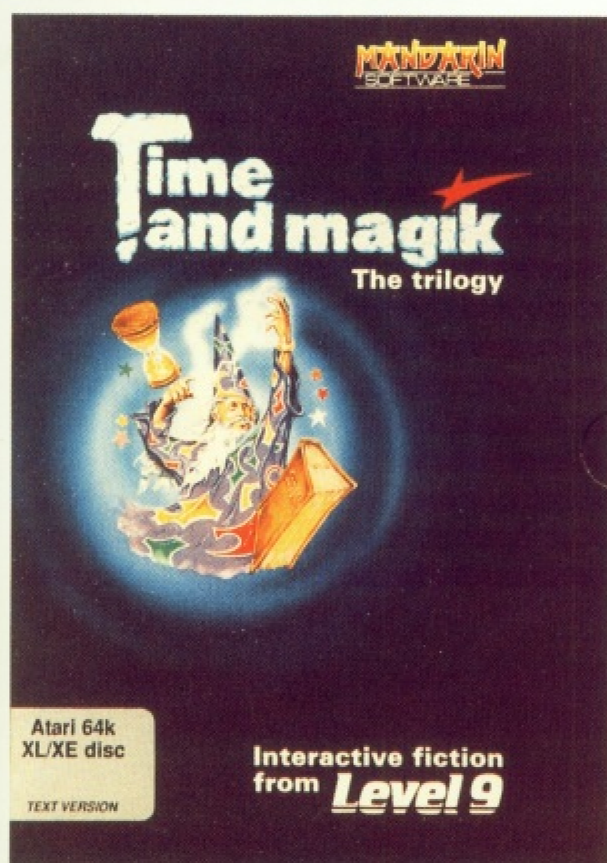
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